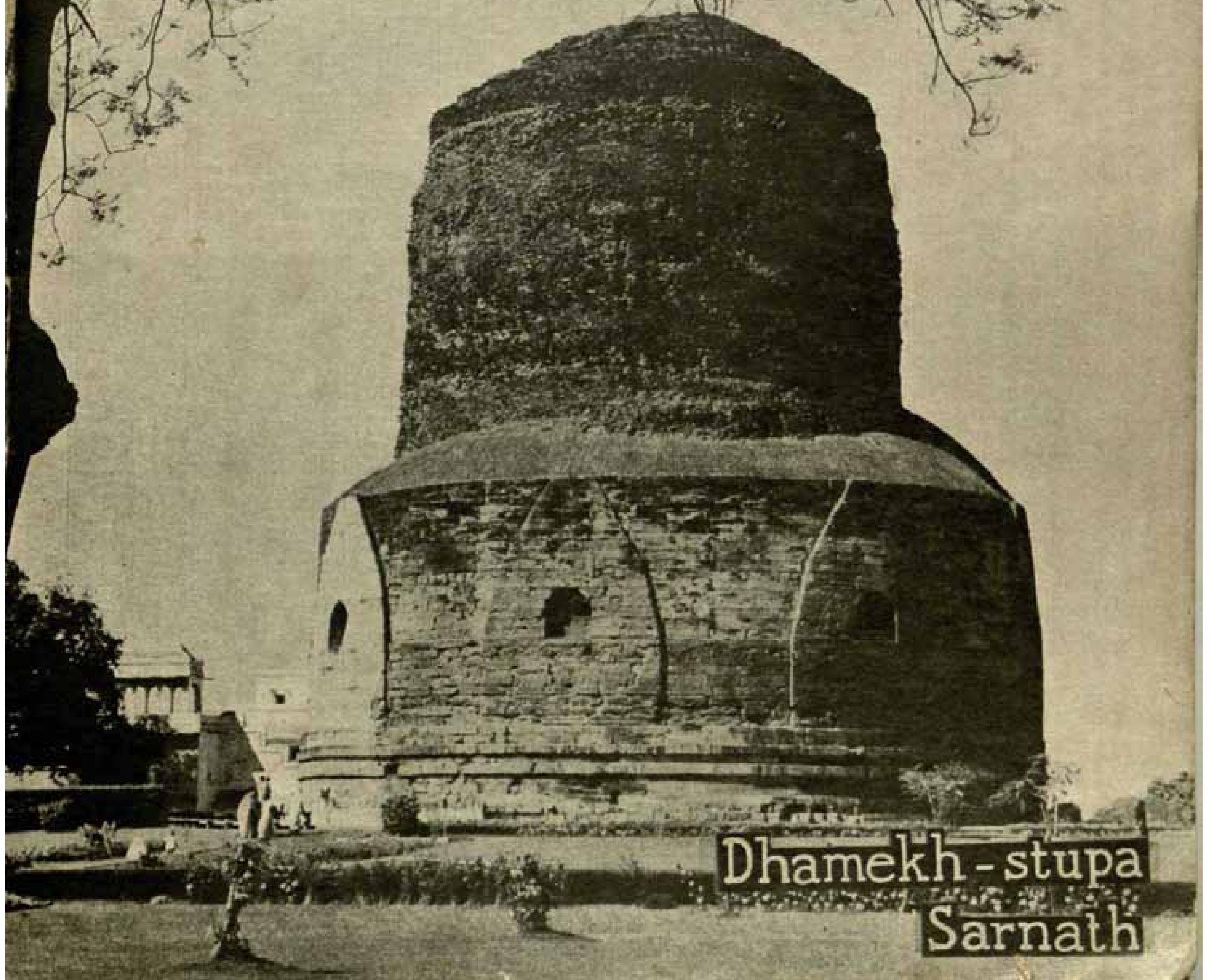
Indian Archaeology

1967-68

A REVIEW



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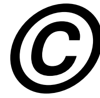
INDIAN ARCHAEOLOGY 1967-68
-A REVIEW

EDITED BY
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Director General
Archaeological Survey of India



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PREFACE

When, on 7th February 1968,1 took over charge of the Archaeological Survey of India, the last number published of the *Review* was that for 1963-64 and the issue for 1964-65 had just been sent to the press. Such was the factual position, in spite of the best efforts of my able predecessor, Shri A. Ghosh.

With so many bottle-necks in the publication machinery, I could not hope to bring out more than two numbers per year. Obviously, therefore, it was not possible for me to clear up all the arrears during the current year. I had, therefore, to take a policy-decision on whether the numbers should come out in a serial order—which would have meant that for several years to come the current number would never see the light of the day, or whether each year the current number should come out along with an arrear one. I opted for the latter and hope that this meets the approval of the readers. Thus, it is expected that during the current year two numbers would come out, namely those for 1964-65 and 1967-68, and, if all goes well, we may hope to clear up the arrears by the end of 1970.

The present number contains a new chapter, namely on Radiocarbon Dates. It is hoped that it would be found useful. It is proposed to continue with this chapter in the future numbers as well.

As usual, the matter incorporated in this number has been received from State Departments of Archaeology, universities and research institutes—Indian as well as foreign, besides the Survey itself. To all the former my grateful thanks are due for the kind co-operation. However, as much of the material, particularly that relating to explorations and excavations, reached us as late as August 1968, not much headway could be made in editing it before I left for the United States in September. During my absence the burden fell on Shri K. Deva, with whom collaborated Shrimati D. Mitra and Sarvashri B.K. Thapar, R. Sengupta, M.C. Joshi, K.S. Ramachandran, N.C. Ghosh, B.M. Pande and S.R. Varma. To all these colleagues I am indeed deeply beholden.

New Delhi
October 9, 1968

B. B. LAL

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INDIAN ARCHAEOLOGY 1967-68

—A REVIEW

I. EXPLORATIONS AND EXCAVATIONS

ANDHRA PRADESH

1. EXPLORATION IN DISTRICT CHITTOOR.— Sarvashri H. N. Singh, S. N. Jaiswal and S. V. Sutaone of the Atlas Branch of the Archaeological Survey of India[1] located Early Stone Age sites at Chintalapalaiyam (13° 48'N.; 79° 35'E.), Jangalapalli (13° 45'N.; 79° 36'E.), Panguru (13°46'N.; 79° 36'E.), all in Taluk Kalahasti, and at Battalavallam (13° 35'N.; 80° 00'E.) in Taluk Satyavedu of the District.

Dr. M. L. K. Murty of the Deccan College Post-graduate and Research Institute, Poona, under the guidance of Professor H. D. Sankalia, investigated the river-sections near Renigunta in the same District, particularly with a view to distinguishing the blade- and burin-industry from the Late Stone Age tools, on stratigraphical and typological grounds. His investigations have confirmed that this region was a continuous habitat of stone-using communities in the Pleistocene and early Holocene.

The stone-tool assemblages are prolific in occurrence and fall into: (i) an Early Stone Age industry, (ii) a Middle Stone Age industry, (iii) a blade- and burin-industry, and (iv) a non-geometric Late Stone Age industry. The raw material in the first three industries is quartzite of different shades and in the fourth it is milky quartz and crystal.

A site, locally known as Nallagundlu, approximately 2 km. east of Renigunta, proved to be a workshop rich in implements of both the industries. Scraping of the section here revealed that the blade- and burin-industry was older than the Late Stone Age, since it occurred exclusively, 20 cm. below the latter, and the mixed nature of the two industries on the surface was probably because of subsequent occupation of the site by the Late Stone Age folk. Since this site is situated on a sloping plane towards a feeder, every monsoonal rain, which washes away the silt, brings about either the movement of the tools or tool-sinking, resulting in their mix-up.

The blade-and burin-industry comprised choppers made on thick flakes and cores; side-and terminal-scrapers on flake and blade; awl points; backed tools (blades, points and lunates); and a variety of burins made on thick blades and split-fluted cores! Long parallel-sided blades were quite common, some of them exhibited signs of utilization without traces of retouch. Besides, two broken mace-heads were also found.

[1] The Archaeological Survey of India is referred to in the following pages as the 'Survey'.

The Late Stone Age industry, characterized by non-geometric microliths, consisted mostly of backed points, lunates and a few flake tools, although flakes without retouch were also found in good number. Parallel-sided blades were less common, while worked-cores formed the major percentage in the assemblage. The implements of this industry, occur only on the surface. The use of a new raw material, the absence of significant tool forms and the small size of the Late Stone Age tools, in contrast with the blade- and burin-industry, would suggest a new tradition.

2. EXPLORATION IN DISTRICT GUNTUR.—The Director, Department of Archaeology, Andhra Pradesh, explored the area around Hasanabad, 1.6 km. from Bellamkonda Fort, and located a rock-shelter at a height of 20 m. in a hillock locally known as Gangabodu, besides some huge mounds, from which grey ware sherds, ascribable to late medieval period, were collected. Palaeolithic tools collected from the western side of the village included specimens of handaxes and cleavers.

3. EXPLORATION IN DISTRICT KARIMNAGAR.—In the course of an exploration of the District, the Director, Department of Archaeology, Andhra Pradesh, discovered several prehistoric graves at Kanikulla and Kadambapuram.

4. EXCAVATION AT PEDDABANKUR, DISTRICT KARIMNAGAR.— During the course of excavation at Peddabankur, the Director, Department of Archaeology, Andhra Pradesh, brought to light structures like *mandapas* with sockets along the edges intended perhaps for fixing wooden posts to support the roof. The floors were normally of well-rammed brick-concrete. Occasionally these were paved with regularly laid flat bricks. From the abundance of tiles recovered, it may be surmised that the buildings had tiled roofings over a wooden superstructure as at Nagarjunakonda and other Bud dhist sites. Two circular brick wells were also found. The ceramic finds included black-and-red ware, red polished ware, black ware, dull-red ware besides a few sherds of Russet-coated Painted Ware, alternatively known as the Andhra Ware. Decoration on pottery consisted of a variety of patterns. It is interesting to note that the black-and-red ware was not associated here with burials, although a bovine skeleton was exposed in comparable levels. Objects of terracotta, stucco fragments, a few iron daggers and blades and coins of early Satavahana kings formed the repertoire of minor antiquities.

5. EXPLORATION IN DISTRICT KURNOOL.—The Director, Department of Archaeology, Andhra Pradesh, explored the vicinity of the Rama and Kalakantaraya temples, both protected monuments at Pedda Tumbalam, 19 km. from Adoni on the Adoni-Mantralya road and retrieved sculptural relics. Notable among these were a carved elephant-head in black basalt, a slab depicting *naga,* three door-jambs and a mutilated image of Sarasvati.

Exploring the submersible area under 'Srisailam Project' in the same District, Shri B. Rajarao of the South-eastern Circle of the Survey, found temples of Chalukyan style at Turimella in Taluk Giddalur and at Pratakota, Siddirajalingapuram, Kapiles-waram, Satanikota, Mutsumarri, Vellala and Mushalimadugu in Taluk Nandikottur. The earliest temple of this style, datable to the tenth century, is the Nagesvarasvami temple at Pratakota, containing beautiful sculptures of Siva, Mahishasuramardini and *saptamatrika* similar to that of Alampur. Mutilated sculptures of Surya were also

found at villages Moravakonda, Chebolu and Bijanivemula in Taluk Nandikottur of the District.

6. EXPLORATION IN DISTRICT KURNOOL AND EXCAVATION AT SINGANAPALLI.—The Excavations Branch of the Survey under Shri S. R. Rao undertook exploration in District Kurnool, with a view to ascertaining the origin and distribution of the painted pottery culture already reported from Pusalapadu, Singanapalli and other neolithic sites in the District by earlier explorers. The painted pottery of District Kurnool is handmade and the decorative features betray affinities with the western Indian chalcolithic cultures. To ascertain the generic and sequential relationship of this culture with the neolithic-chalcolithic cultures of the Godavari-Narmada valleys on the one hand and the pure neolithic non-metal-using cultures of the Palar basin on the other, intensive survey of important painted pottery yielding sites such as Patapadu, Singanapalli, Sivavaram and Ramapuram was conducted. The ground survey revealed that unlike other neolithic and neolithic-chalcolithic settlements, which are found in rock-shelters and on terraces of castellated hills, the painted pottery sites of District Kurnool are large open-air settlements situated far away from the hills. These low-lying mounds, usually 1 to 2 m. high, are situated near small streams. From their location it would appear that the early settlers of these sites did not need the natural protection afforded by the castellated hills any more. The hill terraces were, therefore, abandoned and large open fields for cultivation were chosen, bringing into existence huge village settlements which sometimes extended over 3 to 4 hectares, as in the case of Singanapalli.

As a sequel to the surface exploration to determine the stratigraphic position of the painted pottery culture vis-a-vis other antecedent or successive cultures, if any, trial digging at Singanapalli was undertaken.

The ancient mound situated at a distance of about 1 km. from Singanapalli village rises gradually to a height of 2.5 m. from the eastern bank of a nullah and covers roughly an area of 400 X 350 m.

Three trenches, SGP-l,SGP-2 and SGP-3, were sunk at intervals on the south-eastern and central parts of the mound, wherefrom villagers had removed large quantites of ashy earth (habitation-deposit) for construction of houses. Some of the pits dug by them are said to have yielded large storage jars containing charred grain. The mound looks flattish and the habitation-deposit is less than 2 m. thick. The surface finds comprised : painted pottery; backed blades, lunates and fluted cores of chert, chalcedony and agate; steatite disc-beads of Harappan type; ground stone axes, including a jasper axe with sawn margins, recalling the eastern Indian types; a biconical faceted bead of crystal and a steatite bangle with triangular section, reminiscent of the Harappan bangles.

Stratigraphic sequence observed in SGP-3 in a total occupational deposit of 1.5 m. consisted of five layers, overlying a disintegrated rock, which formed the natural soil. Layers 1 to 3, which were ashy and loose, yielded the maximum quantity of painted pottery and a large number of stone blades and fluted cores besides micro-beads of steatite and shell. On a lime-plastered floor a complete bowl in red ware with a pinched lip and flat base was found *in situ.* Channelled bowls, black-on-red painted pottery, steatite beads and stone blades continued to occur in layers 4 and 5 and were indicative of Singanapalli being a single-culture site.

The red ware of Singanapalli was handmade or turned on a slow wheel, the bulk

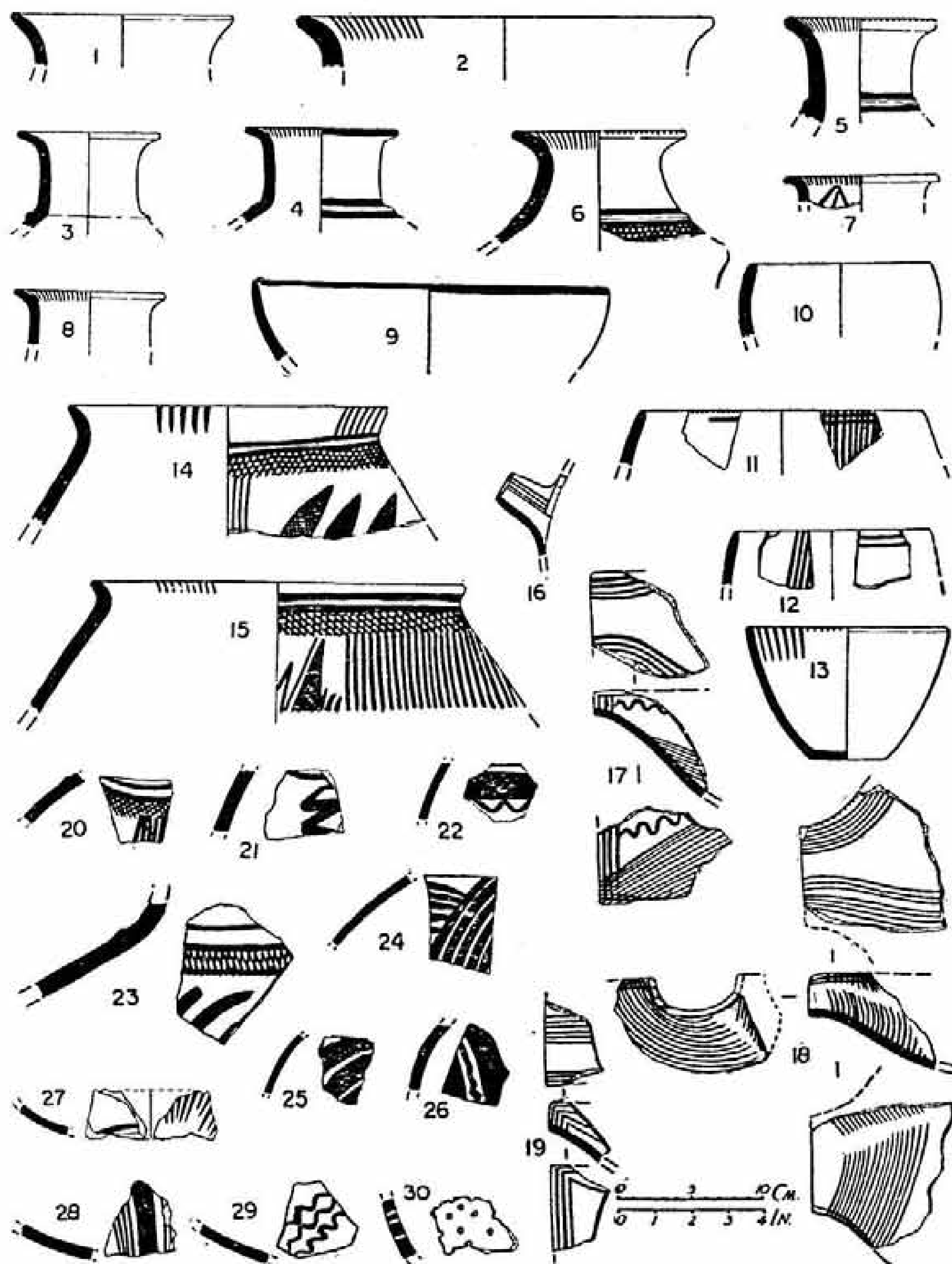


FIG. 1. *Singanapalli : neolithic pottery*

of it being painted in black over a red or pink surface. The main type in this ware was the deep bowl with a pinched lip. Other significant types were the convex-sided bowl with a featureless rim, the stemmed bowl, the high-necked jar of lustrous-red surface and with a beaded-rim, the thick jar or basin with a flaring rim, the perforated bowl and jars and vessels with a tubular spout (fig. 1). The decoration on pottery consisted of wavy or oblique lines drawn in groups on the interior of bowls and dishes, oblique strokes across rims of jars and basins, cross-hatched panels and loops on the neck and shoulder of the jars, fronds, block-designs, intersecting lines, etc. In addition to the painted red ware, plain coarse red ware was also in use. The grey ware of the late levels of the neolithic culture at Sanganakallu and Paiyampalli occurred here in an extremely limited quantity.

The overall picture produced by the material equipment of Singanapalli was that of a prosperous agricultural community living in large villages. It had adopted the painted pottery tradition of the post-Harappan chalcolithic cultures of western India, but had not yet taken kindly to the use of potter's wheel. While continuing to produce the old neolithic pottery types including the bowls with channel and pinched lips, it had evolved new ceramic forms such as the bowl with channel spouts and a flat base. The convex-sided bowl with featureless rim would recall similar ones from Lothal. The late Harappan types occurring here were the high-necked jar and the flat dish, both of which being characteristic types of Lothal B and Rangpur IIC and III. The perforated vessels of Singanapalli were again reminiscent of similar Harappan jars. Disc-beads of white steatite in various sizes, micro-beads of shell and steatite and steatite bangles showed Harappan affinities. The present archaeological evidence suggests a date ranging from 1600 B.C. to 1400 B.C. The neolithic folk of Singanapalli were greatly impressed by the late Harappan style of painting. While the convex-sided bowl and steatite beads and bangles used by them suggest contact with the mature Harappan culture, perhaps indirectly, the presence of the Lustrous Red Ware types and the adoption of linear patterns for painting earthenwares would indicate direct impact of the degenerate Harappan tradition around 1500 B.C.

Other sites within the District, yielding painted pottery and neolithic implements in large quantities, are Ramapuram, Patapadu, Sivavaram and Pusalapadu. The first site also yielded a large number of steatite disc-beads.

7. EXPLORATION IN DISTRICT MAHBUBNAGAR.— Shri T. V. G. Sastri of the South eastern Circle of the Survey explored the submersible area under the 'Srisailam Project,' and discovered: (i) pebble-tools and flakes at Kyaturu Taluk Alampur; (ii) Clactonian and Levallois flake-tools at Iraladinne in Taluk Wanaparti; (iii) Clactonian flakes, assignable to the Middle Stone Age, at Somsil in Taluk Kolhapur and at Kudaveli in Taluk Wanaparti; (iv) neolithic axes, chisels, leaf-shaped points and awls at Velaturu in Taluk Kolhapur. Cairn-circles and megalithic Black-and-red Ware were discovered at Chellipad in Taluk Kolhapur. Besides, late Chalukyan temples were noticed at Bekkam, Marmangal and Kyaturu in Taluk Alampur and typical Vijayanagara temples at Manchalkatta and Jatpol villages in Taluk Kolhapur.

8. EXPLORATION IN DISTRICT NELLORE.— Sarvashri H. N. Singh and S. N. Jaiswal and S. V. Sutaone of the Atlas Branch of the Survey discovered several

Stone Age sites in District Nellore. A detailed list of sites with their co-ordinates and cultural horizon is given in the appended table. ,

(Early and Middle Stone Ages are abbreviated- as ESA and MSA respectively).

Site	*Taluk*	*Longitude*	*Latitude*	*Cultural Horizon*
Chillakur	Gudur	14°08'N.	79°52'E.	MSA
Yellasiri	Gudur	13°56'N.	80°01'E.	ESA
Chintagunta	Nellore	14°24'N.	79°54'E.	ESA
Kandamuru	Nellore	14°27'N.	79°47'E.	ESA
Kanupuru East R.F.	Nellore	14°18'N.	79°55'E.	MSA
Kotturu	Nellore	14°25'N.	79°56'E.	ESA
(near Ambapuram) Mattempadu	Nellore	14^{3}23'N.	79°50'E.	MSA
Nellore R.F.	Nellore	14°25'N.	79°53'E.	ESA
Vaddepalem	Nellore	14°19'N.	79°55'E.	ESA
Venkatachalam Chattram	Nellore	14°19'N.	79°55'E.	ESA to MSA
Baddevalu	Rapur	14°30'N.	79°23'E.	ESA
Chatagotla East	Rapur	14°22'N.	79°23'E.	MSA
Chatagotla West	Rapur	14°22'N.	79°46'E.	MSA
Doruvupadu	Rapur	14°27'N.	79°37'E.	ESA
Dugguntara-chapalem	Rapur	14°18'N.	79°38'E.	ESA
Iskapalli	Rapur	14°32'N.	79°25'E.	ESA
Koturupadu	Rapur	14°11'N.	79°32'E.	ESA
Marupuru	Rapur	14°24'N.	79°48'E.	ESA -
Nawabpeta	Rapur	14°12'N.	79°33'E.	ESA
Pakkelatippa	Rapur	14°14'N.	79°36'E.	ESA
Podalkur	Rapur	14°23'N.	79°44'E.	ESA
Ramapuram	Rapur	14°19'N.	79°40'E.	ESA
Revillayerragun-tapalem	Rapur	14°24'N.	79°39'E.	ESA
Saidapuram	Rapur	14°10'N.	79°44'E.	MSA
Sanayapalem	Rapur	14°18'N.	79°38'E.	ESA
Tatipalli	Rapur	14°17'N.	79°37'E.	ESA
Vutukuru	Rapur	14°14'N.	79°44'E.	ESA
Chandanamudi (neighbourhood)	Sulurpet	13°46'N.	80°01'E.	ESA
Doravarichattram	Sulurpet	13°49'N. -	79°57'E.	ESA
Puduru	Sulurpet	13°53'N.	79°57'E.	ESA
Attivaram	Venkatagiri	13°53'N.	79°47'E.	MSA
Bhairavaram	Venkatagiri	13°55'N.	79°46'E.	MSA
Boppapuram	Venkatagiri	13°58'N.	79°36'E.	ESA
Chilamannuru	Venkatagiri	13°56'N.	79°42'E.	ESA
Gotlagunta	Venkatagiri	13°55'N.	79°38'E.	ESA
Dakkill	Venkatagiri	14°06'N.	79°33'E.	ESA
Gollagunta	Venkatagiri	13°56'N.	79°42'E.	ESA
Konamgunta	Venkatagiri	13°57'N.	79°40'E.	ESA
Mopuru	Venkatagiri	14°04'N.	79°36'E.	ESA
Timmayapalem	Venkatagiri	14°03'N.	- 79°35'E.	ESA

9. EXCAVATION IN DISTRICT VISAKHAPATNAM.— In the course of an exploration,, the Director, Department of Archaeology, Andhra Pradesh laid four trial trenches on a mound locally known as Turakapadu at Butchampet in Taluk Narsipatnam of the District. Except pottery of the medieval period, no other antiquity of importance could be obtained. Due to extensive cultivation the site was found despoiled.

ASSAM

10. EXPLORATION IN DISTRICT GARO HILLS.—In continuation of their previous work, Professor M. C. Goswamy and Dr. T. C. Sharma of the Department of Anthropology, Gauhati University, assisted by two research students, Shri Harish Chandra Sharma and Kumari Farida Ahmed and some post-graduate students, conducted explorations on the northern face of Arbella range around Rongram Development Block.

The topography of the area is characterized by steeply sloped ridges and narrow valley with thick vegetation and rivers mostly cutting deep into the bed-rock. The soil is predominantly light red or reddish brown in colour, often mixed up with small gravels and grits of quartz.

At Chitra Abri, a site discovered last year by the party, further collection of stone artifacts was made. The implements comprised one pebble-tool, forty-seven chipped celts, twenty-one ground celts, twelve scrapers, seven points, three borers, one awl, three spear-heads, twelve shouldered celts, fifteen cores and one hammer.

In the same area on the bank of river Rongram, about 4.5 km. to the east of Rongram Development Block, two tool-bearing sites were noticed within the limits of Selbalgiri, a Garo village. Of these, the first one termed as Selbalgiri-1 is a dome-shaped hillock. On account of erosion and agricultural operations a large number of potsherds and six stone axes could be collected from the surface.

Selbalgiri-2 is situated at a distance of about 2 km. to the south-west on a ridge. On the eroded gravelly surface of its slope numerous stone tools of various types and pottery were found. The collection consisted of five handaxes, two picks, five discs, one hundred and fifty-eight chipped celts, one hundred and fifty-two ground celts, thirty-two shouldered-celts, five awls, one hundred and fifty-eight scrapers, twenty borers, sixty-six blades, twenty-six large knives, seven knife-blades, one hundred and forty-one points, twelve spear-heads, thirty arrow-heads, one fabricator, two wedges, one hinge-flake, two chisels, fifty-three cores, twenty-seven hammer-stones, twenty-two microliths (seven parallel-sided bladelets and fifteen points) and seventeen hundred and twenty-two waste-flakes.

The tools of Selbalgiri-2 can be placed in three categories: (i) those belonging to a highly developed flake-and-blade industry (pl. I B); (ii) those associated with a somewhat primitive microlithic industry (pl. II A); and (iii) primitive tools such as hand-axes, discs and picks (pl. I A) betraying palaeolithic traditions. Points, borers, awls, blades, arrow-heads, spear-heads, hinge-flake and fabricators (pl. I B) were note-worthy finds.

The flake industry here is based on a prepared-core technique. The cores were mainly made on cylinder-shaped lumps of dolerite which incidentally served as the raw material for all the industries. Most of them show prepared striking-platforms.

(pl. II B). Blade-cores showing fluted technique have also been found. The largest blade found at the site measured 14.4 cm. in length, 5.9 cm. in breadth and 1.8 cm. in in thickness. All tools were heavily patinated.

Quartz pebbles of various sizes and shapes were used as hammers.

11. EXCAVATION AT SELBALGIRI-2, DISTRICT GARO HILLS.—AS a sequel to the ground survey, a small trench, measuring 7.7m. X 3.7 m., was laid to ascertain the stratigraphical sequence of the implementiferous strata.

Tentatively the stratigraphy was as follows: layer 1, about 22 cm. thick, composed of reddish earth mixed with a small quantity of quartz gravel; layer 2, 20 cm. thick, reddish-brown in colour containing large quantity of quartz gravel; and layer 3, about 35 cm. thick, yellowish in colour and bearing less gravel. Layer 1 yielded six stone axes, both ground and chipped, one scraper and a large number of sherds. From layer 2 were obtained a core, four hammers and several small flakes, besides pottery. In layer 3 were found numerous microliths, both geometric and non-geometric, with pottery. Amongst the geometric microliths mention may be made of thirteen lunates and four tra-pezes. A large number of points and some arrow-heads were also recovered. The non-geometric microliths were preponderant in the assemblage. The authors of this industry employed dolerite as raw material. The tools were heavily patinated and weathered.

The pottery throughout did not show any appreciable difference. It was handmade, coarse and gritty in fabric and grey, grey-brown or dull-brown in colour, with very rough texture due to the presence of quartz-grits in the clay. No decoration could be detected on the sherds. The pottery found on the surface was relatively thicker and less gritty.

12. EXCAVATION AT JALUKBARI, DISTRICT GAUHATI.— A boat-shaped object made of burnt clay (pl. III A) was exposed by the Department of Anthropology,. Gauhati University, on a hill-slope at a depth of about 1.2 m. below the surface, within the University campus at Jalukbari. It measured nearly 4 m. in length and 92 cm. in breadth. The exact depth could not be ascertained, as the upper part of the rim was broken. The depth of the remaining part was about 30 cm. The thickness of the rim varied between 7.6 cm. and 10.1 cm. The interior of the boat was plastered with clay mixed with dung. The bow of the boat was still intact, but the stern was damaged. The boat contained a large number of sherds, some of them being part of huge storage jars. Similar remains were also exposed at a distance of about 33 m. to the south-west of the above.

BIHAR

13. EXPLORATION IN DISTRICTS GAYA AND PATNA.— Shri B. Narayan, Exploration and Technical Assistant, Department of Ancient Indian History and Archaeology, Patna University, under the guidance of Professor B. P. Sinha, explored Jethian and Rajgir valleys in Districts Gaya and Patna respectively. In the Jethian valley, about 12.5 km. to the east of Rajgir, exploration in Jamunia-nullah, to the west of Budhiyana hills, yielded Early and Middle Stone Age tools. Early Stone Age tools comprising handaxes, a flake, a core-tool and a side-scraper on flake were found for

the first time in the gravel-bed of the Banganga-nullah in the Rajgir valley. The hand-axe made on a flake had a faceted platform.

14. EXPLORATION IN DISTRICT SARAN.— Shri Ballabh Saran of the Mid-eastern Circle of the Survey re-examined the protected site of Manjhi on the northern bank of the Ganga. It was found to contain 12.2-m. high earthen ramparts, revetted both externally and internally with baked-bricks. The mound measures 457 x 365.8 m., and had earlier yielded late Gupta finds.

During the course of the present exploration were found, dishes-on-stand in red ware, plain and fine grey ware bowls and dishes, lipped bowls, rim-less *handis,* sherds of Northern Black Polished Ware and creamish-buff ware, and iron slags. Other finds comprised bricks measuring 45 x 25 x 7.5 cm., beads of quartz and carnelian, besides red ware of later periods.

GUJARAT

15. EXPLORATION IN DISTRICTS AHMADABAD, BHAVNAGAR, JUNAGADH, KUTCH, MEHSANA, RAJKOT, SABARKANTHA AND SURENDRANAGAR.—The Director, Department of Archaeology, Gujarat, located early historical sites at; (i) Bhetadiya Bhan-no-Timbo, close to Bholad and Mori-ma mound near Dholeva, in Taluk Dhandhuka, District Ahmadabad; (ii) Uparkot, near Timana, Taluk Talaja, District Bhavnagar; (iii) Khemdhrol, in Taluk Junagadh of the same District; (iv) Hinshor-no-Timbo, near Hinshor, Taluk Siddhapur, District Mehsana and (v) Mahmadpur-no-Timbo, in the vicinity of village Mahmadpur, Taluk Prantija, District Sabarkantha. He also found Early Stone Age sites near Nakhtarana on river Bhukhi in District Kutch and near Sukhapur on river Khari in District Surendranagar, besides two Harappan sites, locally known as Rampar Vekara-no-Timbo and Khareda-no-Timbo, in Taluks Kotada and Sangani, of Districts Kutch and Rajkot respectively.

16. EXPLORATION IN DISTRICTS BARODA, BROACH AND SURAT.—With a view to exploring the estuaries in the Gujarat coastal plain from Broach to Daman, and in particular, to investigating the extension of the late Harappan culture in this area and its relation to the known chalcolithic cultures of the Deccan plateau, a joint expedition consisting of Dr. F.R. Allchin and Dr.B.Allchin of Cambridge University, and Shri J.P. Joshi of the Western Circle of the Survey, carried out extensive exploration. The expedition collected geomorphological data bearing on the sites of the various periods relating particularly to the lower courses of the Narmada and Tapti, and the estuaries of the Ambika, Auranga, Damanaganga, Kim, Mindola, Par and Purna rivers. In all fifty-four sites were visited, of which twenty-six were new discoveries of significant archaeological interest. Of these, the most important sites are as under.

Middle and Late Stone Age site at Aditeswar on the Narmada near Vagadia, District Broach, yielded an industry mainly of agate, coming from the river-gravels below. The Middle Stone Age industry comprised cores of various types, flakes and blade-flakes, scrapers and burins, while the Late Stone Age assemblage consisted chiefly of blades and blade-cores.

A late Harappan site, Chawanesvar on the Narmada, District Broach, was located adjacent to an extensive early historical mound and yielded sherds of the black-painted

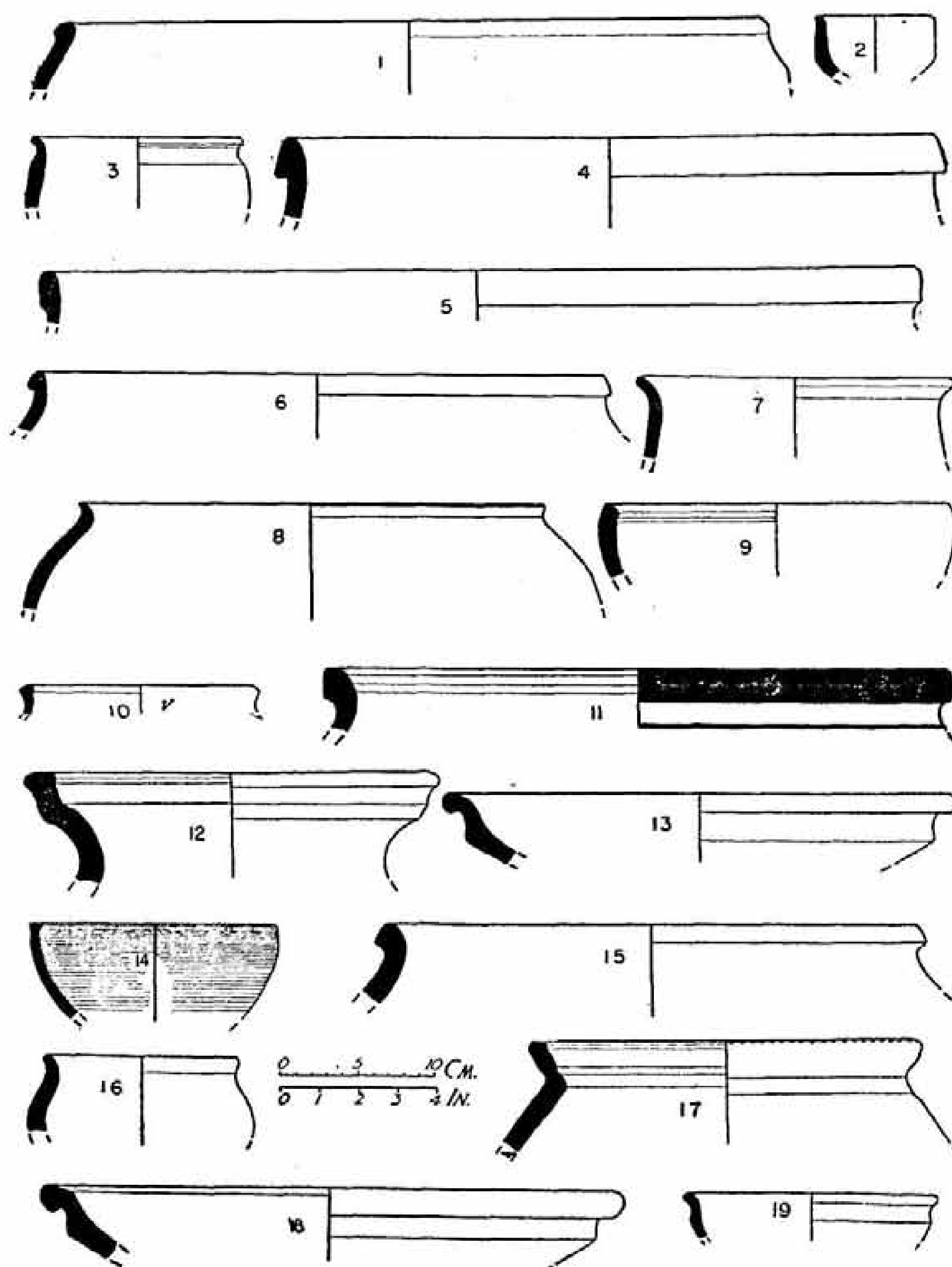


FIG. 2. *Malvan : pottery-types*

ware, the shapes represented being dishes-on-stand and high-necked jars. The design repertoire chiefly included linear designs having affinities with Rangpur IIB and IIC.

Another late Harappan site at Malvan near Dumas, District Surat, on the south bank of the Tapti estuary and located on a subsidiary inlet, marks the southward extension of this culture. The mound, though eroded on the northern side facing the estuary, is extensive. The scatter of pottery is seen over an area of more than 201 x 91 m. A single period late Harappan occupation, about *7 m. in thickness, is exposed on the edge of the mound (pi. IV). Surface^ejcrjloration and section scrapingof a rain-gulley yielded pottery \ broadly divisible into following classes: (1) tine~well-fired red ware witna resonanT 1 ring, frequently painted~with"black on" bright red,, to brqwnish_surface7serying as the principal ware, shapes represented being dishes, ^fishes^n-stand, jars, bowls and miniature jars—all comparable to late Harappan types from Rangpur IIB and IIC and Bhagatrav, with a design repertoire (pi. V A) consisting of plain bands, hanging interlaced-loops, both on body and rim; (ii) buff ware, generally available in the Harappan sites of Saurashtra and Kutch, sometimes painted in thick brownish to red colour with a few examples bearing a polychrome effect; (iii) red ware, made of less finely levigated clay and less uniformly fired and mainly unburnished. with a bright red slip, sometimes painted with black pigment, the design repertoire consisting of plain horizontal bands, spirals, cross hatched chequers, cross-hatched triangles, groups of vertical wavy lines within bands and horizontal ladder patterns and chevrons, both within horizontal bands (pi. VB), simulating those of northern Deccan chalcolithic and Malwa Wares; (iv) black-and-red ware, with a number of typical shapes such as bowls and dishes showing graffiti marks in two instances. A few sherds of a thicker unburnished black-and-redj ware were also

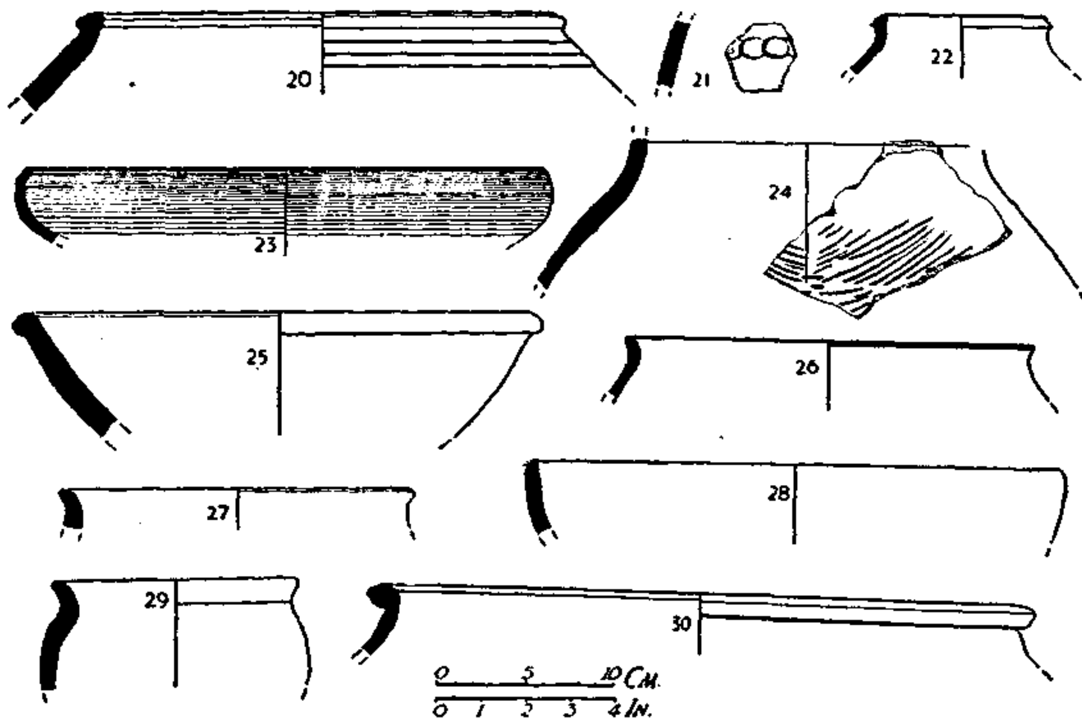


FIG. 3. *Malvan : pottery types*

noticed; (v) coarse pottery mainly handmade, ill-fired, often with a white gritty core and chocolate in colour, representing about one-fifth of the total collection. A proportion of the sherds was burnished and in a few instances deeply scored oblique strokes and finger nail impression provided a decorative element; the types in this ware being jars and bowls. Many of the forms were reminiscent of coarse wares of the Jorwe-Nevasa complex (figs. 2 and 3).

A cursory comparison of the pottery from Malvan with that of Jokha (excavated earlier by M. S. University, Baroda), a chalcolithic site some 30 km. to the east shows that Malvan has a waning late Harappan influence and a corresponding increase of the handmade coarse ware, having general affinity with the pottery of the Jorwe-Nevasa complex.

Further exploration in the Tapti valley up to Navapur, 120 km. from the estuary, did not reveal any settlement of this culture, which would suggest that the natural conditions to the east of Jokha were not conducive to the extension of the late Harappan influence.

Settlements of early historical period were located at Chavaneshvar and Bhar-bhut on the northern bank of the Narmada and at Mathwagha on its southern bank in District Broach. Bharbhut, a highly eroded site, yielded sherds of the Red Polished Ware and a coin.

Sites of early to late medieval period are relatively more common and indicate a much more extensive area of habitation. Medieval ports were located at Dehej and Bharbhut on the Narmada, at Bhagwa on the Sena and at Delwara on the Purna. These sites have yielded a large quantity of glazed pottery and celadon ware.

A list of explored sites is appended below :

(MSA=Middle Stone Age; LSA=Late Stone Age; LH=Late Harappan; EH=Early historical; H= Historical; M—medieval; and LM=Late medieval.

Site	*Nearest village*	*Taluk*	*District*	*Period*
Chandod	Chandod	Chandod	Baroda	M
Aditeswar	Vagadia	Nandod	Broach	MSA, LSA
Akteshwar	,,	,,		
Bharbhut	Bharbhut	Broach	Broach	EH to modern times
Chavaneshwar	Manar	Broach	Broach	LH, EH and pre-Muslim period.
Dehaj	Dehaj	Vagra	Broach	LM
Dongri-no-Tekro	Broach	Broach	Broach	EH to M
Kadiya Dungar	Jahajpur	Jhagadia	Broach	EH
Limodra	Limodra	Jhagadia	Broach	H to M
Makhneswara	Dehej	Vagra	Broach	M
Mathwagha			Broach	EH toM
Vejalpore-I	Broach	Broach	Broach	LM
Vejaipore-II	Broach	Broach	Broach	EH
Vihod	Katpur	Hansot	Broach	LM
Wamleshwar	Wamleshwar	Hansot	Broach	LM
Junihinglaj	Bhadeli	Bulsar	Bulsar	LM

Site	*Nearest village*	*Taluk*	*District*	*Period*
Bhagwa	Bhagwa	Olpad	Surat	*M*
Delwara	Waroli	Navasari	Surat	M
Dhunda	Washi	Navasari	Surat	M
Kadod	Kadod	Bardoli	Surat	LSA
Kasbapa	Kasbapa	Navasari	Surat	LSA
Malvan	Kadi Phaliya (Dumas)	Chaurasi	Surat	LH
Navasari	Navasari	Navasari	Surat	M
Rander	Rander	Chaurasi	Surat	M
Thunda Wagha	Pardi Jhankui	Olpad	Surat	LM
Variao	Variao	Chaurasi	Surat	M

17. EXPLORATION IN DISTRICT BROACH.—Dr. S. N. Chowdhary of the M. S. University of Baroda continued further explorations, taken up earlier by Professor R. N. Mehta in Taluk Valia along the river Ghaga, a tributary of river Kim, and dis covered five microlithic sites.

18. EXPLORATION IN DISTRICT JUNAGADH.—Professor R. N. Mehta explored the Junagadh area and located an earthen bund which acted as a dam across the Suvarnarekha river. It seems to represent the dam of the lake Sudarsana, mentioned in the Junagadh inscription of Rudradaman and Skandagupta.

19. EXPLORATION IN DISTRICT KUTCH.—In continuation of the earlier exploration in District Kutch, Shri J. P. Joshi of the Western Circle of the Survey, assisted by Sarvashri K. P. Gupta, K. D. Tripathi and N. C. Shah, carried out systematic ground survey with a view to locating more Harappan sites for obtaining a clear picture of the overland migration of the Harappans from Sind to Saurashtra via Kutch and tracing the unknown relics of Stone Age and later periods. As a result of this exploration forty-two sites, ranging from Early Stone Age to late historical period, were discovered.

An Early Stone Age site was located to the north-east of the village Virani and to the right of Budhiali nullah in Taluk Nakhtarana. The tools (pl. VI) consisted of Madrasian handaxes and cleavers, choppers, prepared on flakes, retouched big flakes with occasional step-flaking and a large number of waste flakes. The gravels of the Sai river near village Sabhrai also yielded a large pebble-core with prominent flakings.

An early facies of the Middle Stone Age was also found at Pakhra Dungar, the representative tool types being retouched flakes, pebbles and cores (pl. VII).

Middle Stone Age tools, on semi-precious stones, exhibiting Levallois technique, have been found from the river Kankawati near village Vinjhan in Taluk Naliya, from the river Timbav near village Kotada in Taluk Naliya and from the river Dhrud at a distance of 63.4 km. on Nakhtarana-Lakhpat Road in Taluk Nakhtarana. The tools comprised scrapers, end-scrapers, side-scrapers, retouched flakes, points and cores on jasper, chalcedony, chert and agate (pl. VIII A).

Late Stone Age sites, both without pottery and with pottery of a non-descript type,

were noticed at Ankodia, Makaragadh, Gamania-ni-Timbi-2, Sayakhan-ni-Wandh and Gadh (pi. VIII B). Of these Ankodia and Gamania-ni-Timbi-2 were purely microlithic in content. A few sherds of pottery of late period were found at Makaragadh, Sayakhan-ni-Wandh and Gadh.

Eight Harappan sites, including two major settlements, were discovered in northern Kutch. Exploration was carried out as far north as the 24th Parallel (fig. 4). The location of Kotara (Juni Koran), Nenu-ni-Dhar, Kotadi, Moruo, etc., would clearly indicate an overland route from Sind to Kutch. The Harappan sites are listed below:

Kotadi, about 13 km. to the south of the 24th Parallel in the Khadirarea, is an island in the greater Rann of Kutch in Taluk Bachau, located 1 km. to the north of village Dholvira. This site, over 3/4 km. in area, is marked by the presence of twin mounds, of which the south-eastern one, measuring about 100 x 150 m., seems to represent the citadel, well-fortified by rubble masonry, with at least four bastions and

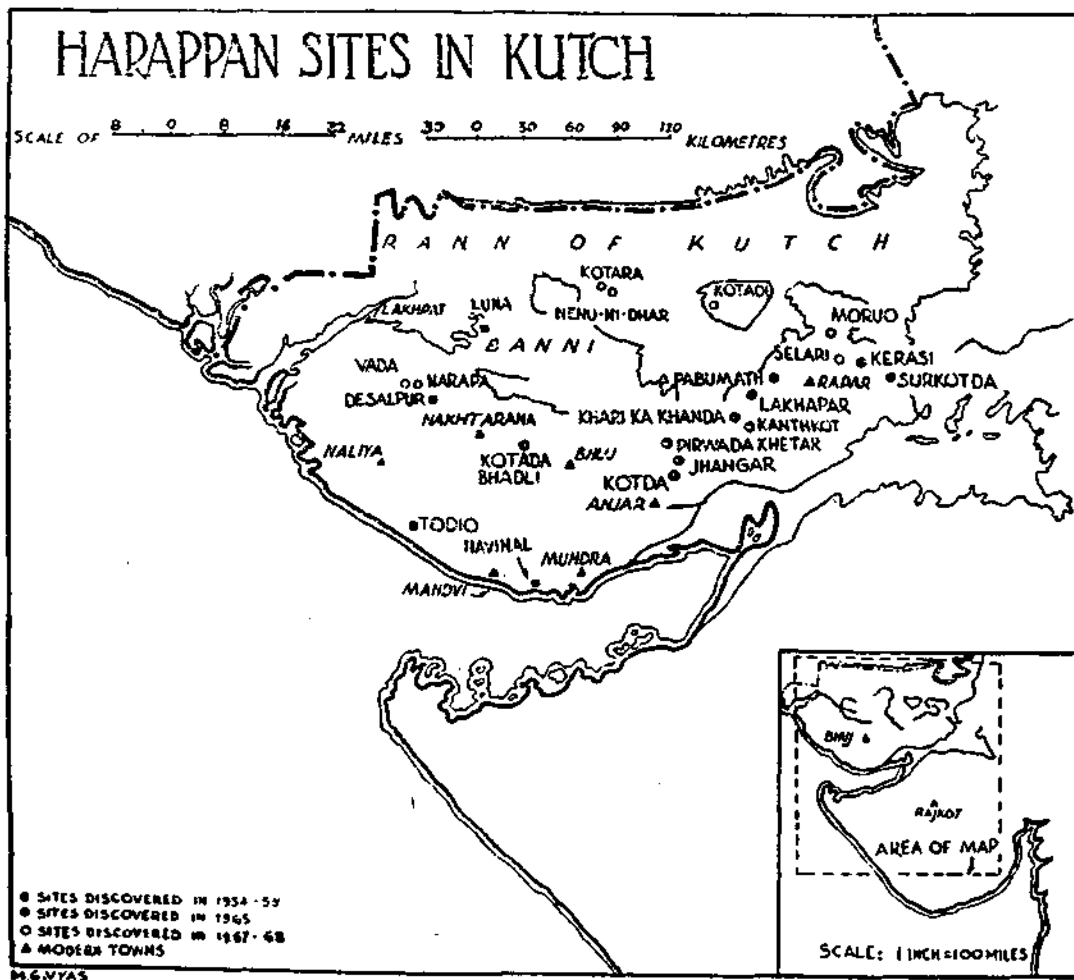


FIG. 4.

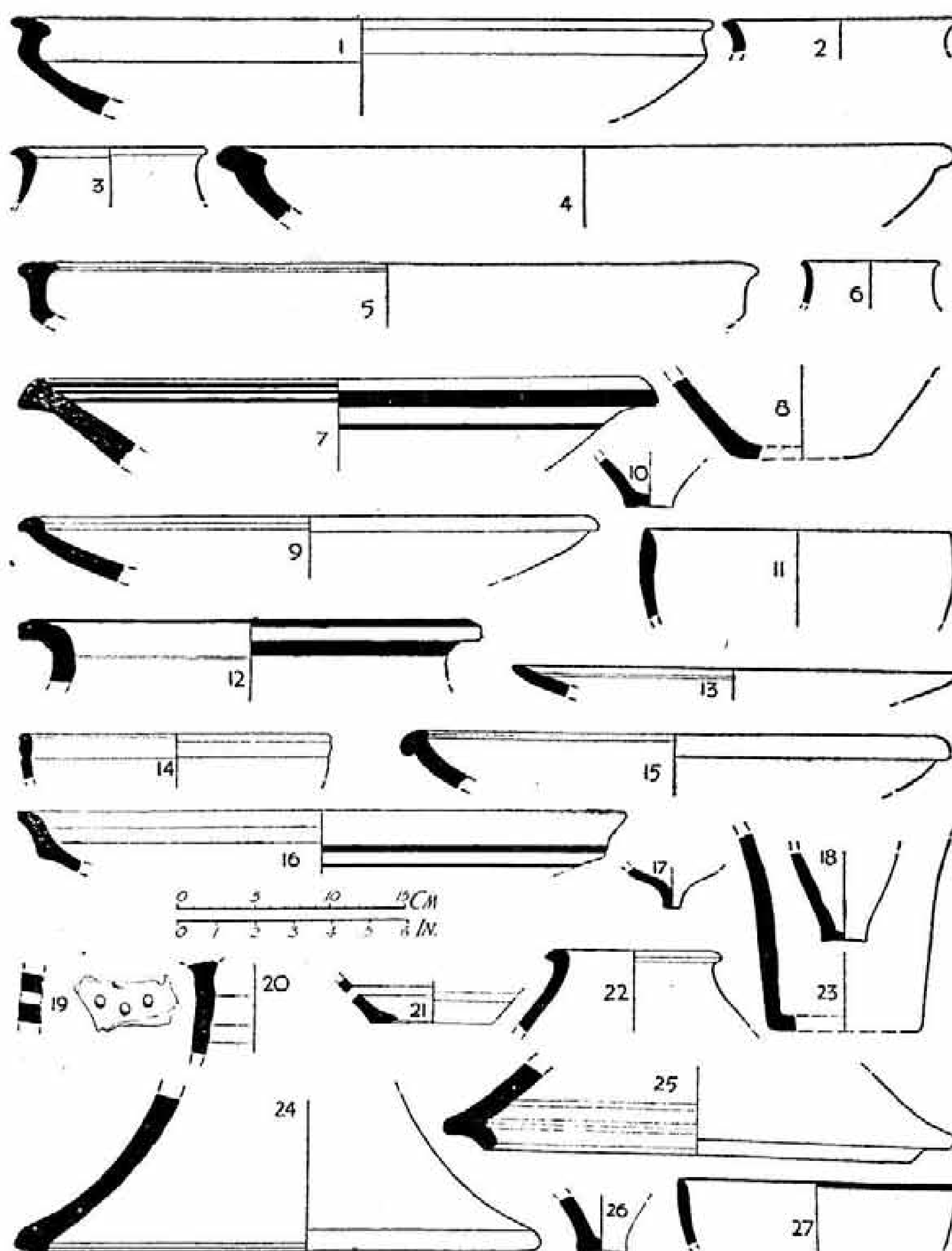


FIG. 5. *Kutch* : *Harappan pottery, 1-23 and 25-27, Kotadi; 24, Kotara*

two entrances, respectively on the east and the west. This mound (pl. IX A) has an average habitation deposit of about 10 m. Towards the south of the citadel-mound, there is a rectangular enclosure adjoining the fortification. The western mound, oriented north-south and measuring 500×250 m., appears to mark the site of the 'lower' city. Between the two mounds there is a good gap, on both ends of which rubble screen walls were found.

The pottery consisted of thick and thin red and painted black-and-red wares, besides some sherds with reserved slip. (pl. IX B). The types represented were the Indus goblet, perforated jar, dish-on-stand, thick storage jar, dish, bowl, beaker and miniature vessel, all typical of the Indus sites. The decorative aspect of the pottery was characterized by crisscross designs, net patterns, and single or multiple bands (thick as well as thin), painted in black over a red surface (fig. 5). Chert blades, blades and flakes on other semi-precious stones, terracotta beads, bangles, cart-wheels and cakes, stone balls and copper pieces (pl. IX C) were other imporant finds from this site. Kotara (Juni Koran) is the northernmost Harappan site situated at about 27km. north-west of Khavada in Taluk Khavada. Though slightly disturbed, it had a citadel, built of rubble masonry as also an adjoining fortified habitation area. Pottery shapes from the site included Harappan dish, thick jar, dish-on-stand, basin, bowl and perforated jar. Terracotta bangles and beads, chert blades and fluted cores in chalcedony formed the other antiquities.

Other explored Harappan sites are at Nenu-ni-Dhar, Selari, Kanthkot, Morvo, Narapa and Vada. The mounds are low and eroded.

Post-Harappan sites, having some elements of Desalpur IB along with pottery of historical period, were noticed at Aloda, Daulatpar, Mora, Serdi and Virani.

At Sayakhan-ni-Wandh, nine cairns, circular in shape, and with a heap of rubble, were noticed on the slope of the Nilwa. Hills in close proximity to a bund near the village Lodhrani. The biggest cairn measures 4·40 m. in diameter. The rest are 2 m. in diameter and 50 cm. in height. The area also yielded a large quantity of microliths, blades, flakes and cores, besides a few lunates and scrapers. In the neighbourhood, a small rubble wall was also observed.

Twenty-four sites, yielding painted red ware of Rangmahal type and ceramics of late traditions, dating from early historical to medieval period, were also noticed.

A few rock-shelters at Aloda, near Kamer in Taluk Rapar, and natural caves at Kanthkot in Bachau, Moruo in Khadir area and Pakhra Dungar near village Virani were also located. At the last mentioned place, one of the caves measured 14 m.×4·40 m.

The explored sites are listed below :

Site	*Nearest village*	*Taluk*
	EARLY STONE AGE SITE	
Pakhra Dungar	Virani	Nakhtarana
	MIDDLE STONE AGE SITES	
River Kankawati	Vijhan	Naliya River Kharod
Serdi	Mandvi River Timbav	Kotada
Nakhtarana		

Site	*Nearest village*	*Taluk*
River Dhrud	39/3 mile (63.36 km.) post on Nakhtarana-Lakhpat Road	Nakhtarana
	LATE STONE AGE SITES	
Ankodia	Vigodi	Nakhtarana
Makaragadh	Rawapur	Nakhtarana
Gamania-ni-Timbi-2	Lodrani	Rapar
Sayakhan-ni-Wandh	Lodrani	Rapar
Gadh	Ambala	Nakhtarana
	HARAPPAN SITES	
Selari	Selari	Rapar
Kodadi	Dholvira (Khadir)	Rapar
Kanthkot	Kanthkot	Bachau
Moruo	Jatavada	Rapar
Kotara (Juni Koran)	Koran	Khavda
Nenu-ni-dhar	Sumranpur	Khavda
Narapa	Gharani	Nakhtarana
Vada	Vigodi	Nakhtarana
	EARLY HISTORICAL AND MEDIEVAL SITES	
Brajawani	Brajawani	Rapar
Colia	Bela	Rapar
Tekro	Balasar	Rapar
Gadadhar-Gadhada	Jatavada	Rapar
Gamania-ni-Timbi-1.	Balasar	Rapar
Padhrod	Lodrani	Rapar
Gadhada	Gadhada (Khadir)	Rapar
Morvo	Gadhada (Khadir)	Rapar
Sobharel	Chapar (Khadir)	Rapar
Halrae	Halrae	Bachau
Nani Mau	Nani Mau	Mandvi
Virani	Virani	Nakhtarana
Serdi	Serdi	Mandvi
Mora	Ambala	Nakhtarana
Juna Andhau	Andhau (Khavda)	Khavda
Jiino Moro	Andhau	Khavda
Dhorawar	Dhorawar	Khavda
Pakhari-Talavadi	Ambala	Nakhtarana
Hamirai	Vigodi	Nakhtarana
Juna Sandhara	Sandhara	Khavda
Rav-warimor	Dadharmoti	Khavda
Gogaria-ni-Wadi	Kanmer	Rapar
Juna Wana	Lodrani	Rapar
Jakha-no-Thar	Balasar	Rapar
	CAVES	
Aloda	Kanmer	Rapar
Kanthkot	Kanthkot	Vachau
Morvo	Gadhada (Khadir)	Rapar
Pakhra Dungar	Virani	Nakhtarana

In the course of exploration in Kutch, Dr. Mrs. Sobhana Gokhale of the Deccan College Post-graduate and Research Institute, Poona, assisted by Shri D.K. Vaidya, Curator, Kutch Museum, Bhuj, collected painted Kshatrapa pottery from Saruwali-Bandi, a site 3.2 km. From Andhau in District Kutch.

Shri T. Arai, a student in the Department of Ancient Indian History and Archaeology, M.S. University of Baroda, and Shri D.K. Vaidya, Curator, Kutch Museum, Bhuj, discovered a *yashti-pillar* inscription of Abhira Isvaradeva, dated Saka 158 (A.D. 236) near Dolatpur in District Kutch.

With a view to finding out the evidence of Stone Age cultures in different parts of the District, Drs. Z. D. Ansari and R. S. Pappu of the Deccan College Post-graduate and Research Institute, Poona, explored certain areas of Kutch and located: (i) Early Stone Age sites at Bhajodi, Devisar, Lakhond; (ii) Middle Stone Age sites at Anjar, Deta, Desalpur, Lakhond, Mathal and Yaksha and (iii) Late Stone Age sites at Anjar, and Ler.

The Early Stone Age sites were found in the Jurassic rock-region. The quartzite and hardened sandstones of the Jurassic formations were used as raw materials for the tools which included handaxes, cleavers, choppers and scrapers.

The Middle Stone Age industry, showing somewhat widespread distribution, is represented by implements like scrapers, points and borers, made on quartzite, silicified shale and chert.

The material used for the tools of the Late Stone Age was chalcedony, the types represented being fluted as well as simple cores, blades, scrapers and points.

20. EXPLORATION IN DISTRICTS KUTCH, JUNAGADH AND SURENDRANAGAR.—Professor H. D. Sankalia, and Sarvashri S. N. Rajaguru, V.S. Lele and D. B. Chitale of the Deccan College Post-graduate and Research Institute, Poona and Shri J.M. Nanavati, Director of Archaeology, Gujarat, assisted by Shri Atri of the same Department, explored parts of Kutch and Saurashtra and located an Early Stone Age site on the left bank of the river Bhuki, near the village Angia[1] 50 km. west-north-west of Bhuj. The exposed section, about 2-5 m. in height, is composed of almost locally derived slope-materials. The sub-angular to angular blocks and chunks of dolerite and sub-rounded pebbles of sandstone were found to be laid in a sandy ferruginous matrix with calcareous cement. This gravel imperceptibly grades into calcareous red-brown silt. A few flakes, one cleaver and a few core-like chunks were recovered *in situ* from this gravel. All the tools were made on locally available dolerite and basalt.

A few Middle Stone Age tools, in chert and sandstone, were also collected from the sub-recent deposits exposed in the stream, occurring about 38 km. from Bhuj on way to Nakhtarana.

In Saurashtra proper, an Early-*cum*-Middle Stone Age site was discovered near Dhrangandhra along the *Khari* and its tributary nullah. Quite a good number of tools were extracted from a well-cemented sheet gravel lying in the bed of the stream and resting unconformably on the Jurassic sandstone. Majority of the tools were made on cream coloured quartzitic sandstone, while a few on chert and jasper The latter is not locally available. Even the quartzitic sandstone exposed here is not so commonly met with in Jurassic formations exposed in west-north-western parts of Saurashtra.

The tool types included choppers, scrapers, different types of flakes and cores The prepared-core technique is evident in many flakes. It is dominantly an advanced Acheu-

1 This site was also reported by Dr. Z. D. Ansari and Dr. R. S. Pappu of the Deccan College, Poona.

lian flake industry with an incipient development of Middle Stone Age tradition. Further, during the survey of the Bhadar and the coast of Saurashtra from Porbandar to Veraval, large number of Middle Stone Age tools were picked up from the well-cemented pebbly sandy-gravels exposed in the cliff-sections of the Bhadar near Jetpur and Dhoraji.. Here, the tool assemblage consisted of side-scrapers, both single- and double-edged, convex-scrapers, borers, points, blade-flakes, simple flakes and cores. The raw materials used were chert, jasper, rhyolite and trachyite. These tools occurred in the stream almost up to a point where it becomes tidal.

The survey of the coastal tract revealed raised beach deposits such as fossil dunes, littoral concrete, corals, etc. at a level of 3-5 m. above the present high tide level. The miliolite limestone, supposed to be an Early Pleistocene formation, constitutes a distinct marine terrace at a level of 5 m. above high tide level and occurs at level of 200-300 m. at Barda and Chotila respectively near Porbandar and Rajkot. In some of the well-sections between Navhi-Bandar and Veraval, a distinct red brown soil deposit, about 1-3 m. thick, was noticed amidst the miliolite limestone formations. It occurs at a depth of about 3 m. from the surface of the miliolite. The presence of such soil deposit indicates changes in the agency of deposition, i.e. from marine to continental and again to marine.

On the basis of this brief survey the following can be postulated.

(i) Though the Saurashtra peninsula has preserved an almost complete record of the Pleistocene period, the occurrence of Stone Age industry in this region is comparatively late, i.e., in the later half of the Pleistocene.

(ii) During the Pleistocene, there were a number of land and sea level changes as indicated by the raised beach deposits, fossil-soil deposit in the miliolite lime-stone and the present rejuvenated character of the streams from Kutch and Saurashtra.

(iii) The deposits exposed in the Bhadar valley, especially at Jetpur and further downstream, show fluviolacustrine features and seem to have been controlled by eustatic changes in that area.

(iv) It is quite likely that marginal zones like Rann, Little Rann, etc. might have changed their physical configuration many times during Pelistocene and such changes must have affected cultural movements and contacts of Early Man in north-western Gujarat.

21. EXPLORATION IN DISTRICT SURAT.—Shri D.B. Chitale of Deccan College Post-graduate and Research Institute, Poona, under the guidance of Professor H.D. Sankalia, surveyed the area of Dangs, south Gujarat, and discovered the following sites, ascribable to the Early, Middle and Late Stone Ages: Aherdi, Ambapada, Bhusda, Borinagaotha, Borkhal, Chiklada, Dhadra, Dharmapuri, Dungarda, Galkund, Kevdi, Motacharya, Nanapada, Rambhas, Sakarpatal, Timbrugatha, Vakharia and Wai on the river Ambika; Bardipada, Mavlipada and Singana on the river Gira; and Chinchli, Harpada, Jamlanapada, Kakarda, Kotamda, Mahal and Zaran on the river Purna.

Representative tool types were choppers, chopper-chopping tools, cleavers, discoids, scrapers, points and cores, the core-tool being a predominant element. Besides, five mace-heads were also picked up.

22. EXCAVATION AT DHATVA, DISTRICT SURAT.—The M.S. University, Baroda,

under Professor R. N. Mehta, assisted by Dr. S. N. Chowdhary, conducted excavation at Dhatva in Taluk Kamrej to determine the extent of the chalcolithic cultures in south Gujarat, especially along the bank of the river Tapti. The mound is situated at a distance of about 2 km. from the village Dhatva.

Two trenches, measuring 10 x 4 m. and 10 x 3 m., were laid out respectively on the north-western slope and top of the mound which in turn measures about 300 m. in diameter.

In all seven layers (pl. III B), revealing two cultural horizons (Periods I and II), were exposed.

Period I (*circa* 1500- 1000 B. C.) was characterized by the pottery of chalcolithic assemblage, showing affinities with similar cultures of Saurashtra and Malwa. Pottery of the Deccan chalcolithic was absent. No structure of any kind could be detected in this Period. The pottery was limited in variety and quantity. Micro-lithic tools, like lunates, scrapers and blades of jasper, agate and chert were also found.

Period II *(circa* 500 B.C.-A.D.2OO) was characterized by early historical antiquities, such as punchmarked coins, beads of carnelian and agate, crystal ear-studs, etc. The ceramic wares of the Period were Red Polished Ware, black-and-red ware and painted pottery of historical times. However, fragments of Roman amphora were obtained from the surface. Iron smelting industry was also evidenced during this Period.

The excavation revealed the extension of the chalcolithic cultures in this part of the country. But the limited quantity and variety of the chalcolithic pottery suggested that this site was just a small village settlement. It is highly probable that after Period I this village was deserted for a considerable time.

HARYANA

23. EXPLORATION IN DISTRICT HISSAR.—With a view to tracing the extent of the Harappan and other cultures in the region, and also as a part of the training programme of the students of the School of Archaeology, the Explorations Branch of the Survey, under Shri B. K. Thapar, assisted by Shri S. P. Jain and Shri K. N. Dikshit undertook exploration of the Ghaggar valley in Tahsil Sirsa. As a result of this exploration several sites, yielding the Painted Grey, black-and-red, black-slipped, grey and red wares, were discovered, besides those belonging to the Rangmahal culture. No Harappan settlement, however, could be located. Sites yielding Rangmahal pottery were found to be situated in close proximity to the river Ghaggar (locally known as *Nali)* and show an average height of about 10 m.

Amongst the Painted Grey Ware settlements, a mound locally called Lahoronwali Theri at Raniya-3 deserves special mention. Even in its disturbed condition, the mound rises to a height of 6 m. above the surrounding plain. The Painted Grey_Ware types found here mainly comprised dishes and bowls. Pottery of the later periods was also collected from this site.

Among other sites, Sikandarpur-1, ascribable to Rangmahal culture, is significant especially for its extensive area (about 20,000 square metres) strewn over with brickbats, stone-chips and potsherds. Close by, at a distance of about 1 km., is another

mound, Sikandarapur-2, of comparable cultural affinity, and in the depression in between ten rectangular stone slabs, having marks of iron dowels, were found.

The explored sites are listed in the table below. The following abbreviations have been used:
(PG=Painted Grey Ware; BR—Black and red ware; BS=black-slipped ware; G—grey ware; R=Rangmahal pottery and M=medieval ware)

Site	*Latitude*	*Longitude*	*Wares*
Abholi-1	29°31'N.	74°53'E.	R
Abholi-2(Haboli)	29°31'N.	74°53'E.	M
Bahuddin Thed	29°32'N.	75°13'E.	R
Balasar	29°33'N.	74°46'E.	R
Bir Singhwala chak	29°25'N.	74°57'E.	R
Budha-Bhana	29°37'N.	75° 6'E.	R
Budhi Nadi	29°37'N.	75° 6'E.	R
Dhamora	29°32'N.	74°47'E.	R, M
Fatehpur-1 (Fatehgarh)	29°34'N.	74°49'E.	R
Fatehpur-2	29°34'N.	74°49'E.	R
Fatehpur-3	29°34'N.	74°39'E.	R
Firozpur	29°28'N.	74°57'E.	R
Gidranwali	29°28'N.	74°52'E.	R, M
Harni Khurd	29°32'N.	74°39'E.	R
Humayun Khera	29°27'N.	74°47'E.	PG, G, BR, R, M
Jagmalera	29°33'N.	74°44'E.	R
Kesopura	29°27'N.	74°52'E.	R, M
Kariwali-1 (Dharampura)	29°33'N.	74°30'E.	PG, G, BS, BR, R, M
Kariwali-2 (Majjal Ther)	29°34'N.	74°35'E.	PG, G, BS, BR, R, M
Kariwali-3	29°33'N.	74°37'E.	PG, G, R, M
Kotli-ki-Dhani	29°32'N.	75°12'E.	R
Kullabad	29°27'N.	74°51'E.	R, M
Langewala	29°11'N.	75°41'E.	R
Madho-Singhana-1	29°25'N.	74°58'E.	R
Madho-Singhana-2	29°26'N.	74°58'E.	R
Mangala-1	29°28'N.	74°57'E.	R
Mangala-2	29°28'N.	74°58'E.	R
Mangala-3	29°27'N.	74°58'E.	R
Mallekha	29°26'N.	74°55'E.	R, M
Manju-Khera	29 42'N.	74°28'E.	R
Mirzapur (Harnikalan)	29°31'N.	74°40'E.	R
Muizzuddin	29°28'N.	74°53'E.	R
Nakora	29°30'N.	74°44'E.	PG, G, BS, BR, R, M
Nanuware	29°33'N.	74°51'E.	R
Narain Singh Dhani	29°37'N.	75°13'E.	R
Otu	29°30'N.	74°54'E.	R, M

Site *Latitude* *Longitude* *Wares*

Panihari	29 3 38'N.	75°8'E.	R
Raniya-1 (Joriyanwala Ther)	29°32'N.	74°50'E.	R,M
Raniya-2	29C32'N.	74°50'E.	R,M
Rahiya-3(Lahoronwali Theri)	29C32'N.	74°50'E.	PG, G,BS, BR, R, M
Raniya-4 (Narain Singhwali Theri)	29C32'N.	74°50'E.	R,M
Raniya-5 (Raniya proper)	29°32'N.	74°48'E.	M
Raniya-6 (Santerwalon ki Theri)	29c3t'N.	74°45'E.	R,M
Raniya-7 (Fakhironwali Theri)	29°31'N.	74°45'E.	R,M
Rasulpur-1	29°34'N.	75C9'E.	R
Rasulpur-2	29°34'N.	75°9'E.	R
Sainpal-1	29°37'N.	74 3 42'E.	R
Sainpal-2	29°37'N.	74°42'E.	R
Sri Jiwan Nagar	29°30'N.	74°44'E.	R
Sikandarpur-1	29°32'N.	75°6'E.	R,M
Sikandarpur-2	29C32'N,	75°6'E.	R,M
Sirsa (Three mounds)	29°32'N.	76°3'E.	R,M
TalwaraKhurd	29°30'N.	74°40'E.	R
TalwaraTher	20°30'N.	74°37'E.	R

HIMACHAL PRADESH

24. EXPLORATION IN DISTRICTS KANGRA AND MANDI.—In continuaton of the previous year's work of examining the origin of the river terraces and establishing their possible correlation with the Pleistocene glacial sequences in the Himalayas, a joint exploration was undertaken in the Kangra valley under the Cultural Exchange Programme sponsored by the Governments of India and Poland. Dr. R.V. Joshi, assisted by Shri B. P. Bopardikar, and Shri M. U. Qureshi, of the Prehistory Branch of the Survey worked in collaboration with Dr. Roziski, Professor Chimielewski and Madame Nikolska from Poland. The party surveyed most of the Kangra valley and also traversed part of Kulu-Manali region in the upper reaches of the Beas.

The examination of the area showed the absence of any direct glaciation phenomena. Even the morainic deposits were not encountered. The terraces, however, have been cut into the cone deposits formed at the foot of the Dhavladhar or Dharamsala range and later spread out in the south beyond Guler on the Banganga river. Tentatively, four cone formations have been worked out as Sikhov-1 and 2 and Kangra-1 and 2. Sikhov-1 is the oldest cone and Kangra-2 is the youngest, and each

of these form cone deposits which have been noticed in terraces I to IV at Guler and at several other places. Again, tentatively, these cones correspond to <3unz, Mindel, Riss and Wurm glaciations as noticed in the Alps.

The mechanism of cone formation appears to be a complex process, much influenced by the steep slopes of the Himalayas, intense monsoon precipitation and subsequent movement of the material by the streams. In regard to this factor, the Kangra valley stands out as a type-region distinct from the Kashmir valley where such glacial studies had been conducted previously by De Terra and Patterson.

No new Stone Age sites were found except the one at Kuthman on the Gaj Khad which shows distant affinities to the neolithic culture.

KERALA

25. EXPLORATION IN DISTRICT TRICHUR.—Shri K. Chandrasekharan of the Southern Circle of the Survey found fine sculptures of medieval period in Siva temples at Mundur and Cheramanthittu; Vishnu temples at Parakkad and Poyya; Krishna temple at Vadakkummari and Rama temples at Nathika and Kadavallur. He also noticed wood-carving on the ceilings of a shrine, dedicated to Bhagavati at Cranganore and Palliyil Bhagavati temple at Perinjanan and other temples at Parakkad, Velappaya, Chentrappini, Mullaserry and Guruvayur and mural paintings on the temple in Peramangalam, Tiruvanchikulam and Guruvayur.

He also found urn-burials at Nattika Edakulathur, Eranallur and Kanjirakode; and menhirs, about 3 m. high, at Venkitangu and Alur, besides umbrella stones *(kudai-kals)* at Vellattanjur and caves cut into lateritic rocks at Mullassery.

MADHYA PRADESH

26. EXCAVATION AT TRIPURI, DISTRICT JABALPUR.—In continuation of last season's work, excavation was resumed at Tripuri by the Department of Ancient Indian History, Culture and Archaeology, University of Saugar, under the. direction of Professor K. D. Bajpai, assisted by Dr. U.V. Singh. The succession of four Periods, ranging in time from 500 B.C. to A.D. 400, already noticed in the previous years, was again confirmed.

A burnt brick wall of about first century A.D., with nineteen courses, traceable to a length of 3-25 m., and two ring-wells formed a remarkable discovery. Mention may be made of a gravel bound in clay-and-sand floor with a soling of well-rammed and crushed burnt bricks and small pebbles, datable to A.D. 300. The walls of houses of the early centuries of the Christian era were of well-baked bricks. Relics of the Kalachuri period were also encountered in the upper layers.

Antiquities discovered included beautifully-carved stone and terracotta images, beads of precious and semi-precious stones, inscribed, punch-marked and cast copper coins, seals and metal implements. Several rare coins of the Satavahana kings, found here, indicated their suzerainty in the Tripuri region. The Satavahana rule was followed by that of the Bodhi dynasty, for the coins of Siva Bodhi and Vasu Bodhi of this House were found at Tripuri during the last season's work. The name of another king Chandra Bodhi was read on a sealing unearthed this year. This dynasty of Tripuri has come to light for the first time in Indian history. The Bodhi kings called them-

selves *Maharaja.* Gold and silver coins of the Indo-Sassanians and Kalachuri kings, were also found.

27. EXCAVATION AT KAYATHA, DISTRICT UJJAIN.- In continuation of his previous work (*Indian Archaeology 1964-65 A Review*[1] p. 18), Shri V. S. Wakankar of the Vikram University, Ujjain, conducted excavation at Kayatha, jointly with the Deccan College Post-graduate and Research Institute, Poona, represented by Dr. Z. D. Ansari and Dr. M. K. Dhavalikar and assisted by Sarvashri Y. S. Rasar, S. K. Kulkarni and P. R. Kulkarni. The main objective of the work was to determine the exact nature of the earliest culture and its relationship with later cultures, represented by the painted black-and-red and the Malwa wares.

Two trenches, labelled A and B, were laid out, the first one on the southern periphery of the site and the other on the Gadh mound. The excavated material revealed a sequence of five cultural periods.

Period I (*circa* 2200 - 2000 B.C.), was characterized by mud houses and three distinct ceramic industries. Its principal pottery was a sturdy ware having broad zones of thick chocolate slip, usually from lip to shoulder, sometimes up to base, with painted patterns, executed in violet. Shapes included jars with globular profile and wide flaring mouth and bowls having thickened incurved rim and carinated shoulder, besides huge storage jars with heavily beaded rims reminiscent of those from Harappan sites. A majority of vessels in this ware had ring bases. Vessels with disc bases were also present in small numbers.

The red-painted buff ware, of well levigated clay and fine fabric, was another distinguishing feature of this culture. It was thin-walled, bearing paintings, usually in red pigment over a buff surface. The commonest form was the *lota* having a globular with indistinct carination and wide flaring mouth. Bigger vessels of the same shape were also met with.

The third ceramic industry comprised a plain red ware without slip or wash, with incised decorative patterns, viz., multiple zigzags, chevrons, etc., executed by a comb-like instrument. Only bowls and dishes were represented in this ware. Also associated with it was a coarse handmade ware with incised and applique designs.

Other antiquities of this Period included two copper axes, with bevelled edge and lenticular section, and twenty-eight copper bangles, round in section, with featureless terminals; microliths such as blades, points, crescents, etc. Two exquisite necklaces composed respectively of one hundred and seventy-five and one hundred and sixty beads of carnelian, agate and crystal, mostly long barrel and short bicone in shape, were found in pots, besides a jar containing about forty thousand micro-beads of steatite.

After the end of Period I, the site was perhaps deserted for about a century or so, as indicated by a sterile layer of black soil, about 15 to 20 cm. thick.

Period II (*circa* 1900 B.C. - 1600 B.C.) witnessed the arrival of an entirely new set of people who used the characteristic white-painted black-and-red pottery, similar to that from the Banas valley. The associated wares were also present in large quantities. The only unique feature of this culture was the abundance of terracotta figurines of bulls, either naturalistic or highly stylized. The stylized, forms, depicting the hump and the horns, had either a rounded or a pedestalled base. Such bull forms have no analogues within the country or even outside.

1 This is publication is referred to in the following pages by the year only.

The houses of this Period were humble structures of mud with walls of reed-screens thickly plastered over. Antiquities included necklaces of short cylindrical shell beads, a terracotta short bicone bead bearing punctured patterns (identical with those from Ahar), microlithic blades, points, crescents, etc.

Large-scale burning, evidenced in the excavation, was probably responsible for the decline of this culture. On the basis of C-14 determinations, the beginning of this culture at Kayatha is placed around to about nineteenth century B.C. This is by far the earliest date for the painted black-and-red ware culture, of which the Banas valley in Rajasthan is supposed to be the nuclear zone. It is, therefore, interesting that its beginnings have to be placed far earlier in the peripheral region.

There was an appreciable overlap betweeen Periods II and III. Period III, datable to *circa* 1700 B.C. - 1300 B.C., was characterized by black-painted red pottery together with its associated wares and microlithic tools, formed the Malwa culture-complex. However, the tradition of making bull figurines of Period II did continue.

After Period III, the site was deserted for about six to seven centuries, as demonstrated by a weathered layer of black soil, about 30 cm. thick. It was reoccupied about the sixth century B.C. by a people who built houses of burnt bricks and used plain red pottery akin to that found in early historical levels in central India and Deccan. A few sherds of grey ware, though devoid of paintings, probably belonged to the Painted Grey Ware pots which had been reported from earlier excavation at the site. A few Northern Black Polished Ware sherds were also found in the upper levels.

Period IV (*circa* sixth —second century B.C.) marked the beginning of full-scale iron age as attested by a number of iron implements. Minor antiquities of the Period included beads of semi-precious stones, spool-like ear ornaments of jasper, antimony rods of copper and a number of bone points, which may have been used either as arrow-heads or stylii.

Period V *{circa* second century B.C. — sixth century A.D.) was chiefly distinguished by a number of structural remains found on the mound. A large structure consisting of several rooms with a bathroom having arrangements for draining out water, a burnt brick wall and foundation of a wall, built of coarse rubble set in mud mortar, were unearthed.Pottery consisted of coarse plain red ware, represented by the characteristic ink-pot type lids. Minor antiquities included a number of implements, carved ivory bottle and a few cast coins.

Kayatha continued to be occupied in the post-Gupta times and even later, as evidenced by sculptural fragments and medieval temple-remains, scattered in the village.

MADRAS

28. EXPLORATION IN DISTRICT CHINGLEPUT.—Shri H.N. Singh and Shri S.N. Jaiswal of the Atlas Branch of the Survey discovered a Middle Stone Age site at Yiga-varipalem (13°26'N; 80°03'E.) in Taluk Ponneri.

29. EXPLORATION IN DISTRICT CHINGLEPUT AND NORTH ARCOT.—Professor T.V. Mahalingam of the University of Madras, found Chola temples at Erivoykuppam (till recently known as Siyasankarapuram), Pullalur, Tiruppanmur, and at Vandalur (an apsidal temple, originally Saivite but now turned into a Vishnu shrine) in District Chingleput and in Takkolam, in District North Arcot. He also found Jaina temples at Tiruppanmur and Karandai, in District Chingleput, which contained late bronze images

of *Tirthankaras.* A temple of seventeenth century was also noticed at Erivoykuppam. The following sculptures in the temples were significant: Sarasvati at Tirruppanmur ; Dakshinamurti Siva, Vishnu, Brahma and Mahishamardini at Takkolam and Vishnu at Pullalur.

Ancient habitational vestiges in the form of ring wells and medieval pottery were observed around the Siva temple at Tiruppanmur. Black-and-red, red and red-slipped wares were found strewn on a small high ground to the north-west of Perumbakkam, in District Chingleput. Black-and-red and red polished wares, large-sized bricks and ring wells were found on a 3-m. high mound on the right bank of the Coovam river near Takkolam in District North Arcot. At Takkolam itself, 16 km. to the east of the village, an embankment known an Kottaikaramedu with vestiges of large-sized bricks and medieval pottery was noticed.

Urn-burials were found at Takkolam in District North Arcot and a dolmen within a stone-circle at Kunnavakkam in District Chingleput.

30. EXPLORATION IN DISTRICT DHARMAPURI.—Shri B. Narasimhayya of the Southern Circle of the Survey found a number of megalithic port-holed cists at Doddamanchi, Dodda Timmanahali (Dudiavanpalli), Gummanur, Gunduvatam, Kottur, Nammandahalli, Natarapalaiyam, Paleyur, Sengodachennanahalli (Sonninayak-kanahalli), Suligunta and Timijepalli.

Several megalithic cairn-packed cists with circle - stones were located by him at Doddamanchi, Gunduvalam, Kurubanahalli and Natarapalaiyam, besides those of megalithic affinity with circle-stones at Ratnagiri.

At Bettamugalalam, Bilalam, Gangadevanahalli, Kanavanapalli, Kundukottai, Mallikarjunadurgam, Manchugonduppalli, Mariyalam, Palaiyamkottai, Puram and Tottikuppam he noticed dolmenoid-cists with circle-stones.

Many inscriptions in Tamil, ranging from the fourteenth to the seventeenth century A. D. in date, were found at Erudukottai, Kanavanapalli, Mallikarjunadurgam, Nagamangalam, Palaiyamkottai, Sattanapalli and Timijepalli.

A fortification on a hill with granaries and ponds was found at Ratnagiri and another with a temple at Mallikarjunadurgam. Forts of late medieval period were also discovered at Agalakottai and Palaiyamkottai.

Numerous hero-stones were found at Gangadevanahalli, Nagamangalam and Natarapalaiyam.

31. EXCAVATION AT PAIYAMPALLI, DISTRICT NORTH ARCOT.—In continuation of the previous year's work, (*1964-65,* p. 22), the Excavations Branch of the Survey, under Shri S.R. Rao, resumed excavation at Paiyampalli. The previous season's work had brought to light two cultural periods, viz., the neolithic (Period I) and the megalithic (Period II). The Carbon-14 determinations of the charcoal samples indicated for Period I a date at 1390±200 B.C. and for Period II at 315±100 B.C. The renewed excavations were undertaken with five objectives :(i) to obtain more data on the nature of the dwellings in both the cultural Periods; (ii) to ascertain the method of the disposal of the dead; (iii) to confirm the absence of metal in Period I as evidenced by the previous season's dig; (iv) to investigate the part played by the blade industry in the neolithic culture-complex of this region ; and (v) to know whether there was any time-lag between the

two cultural periods and, if so, whether the overlap of ceramic industries noticed in the middle levels was a superficial one.

Digging operations were carried out in three terraces, designated as Site-1, Site-2 and Site-3, located respectively on a slope of Talatappamalai hill forming part of Shevroy Range, to its west and south.

While confirming the already known cultural sequence (fig. 6), the excavation

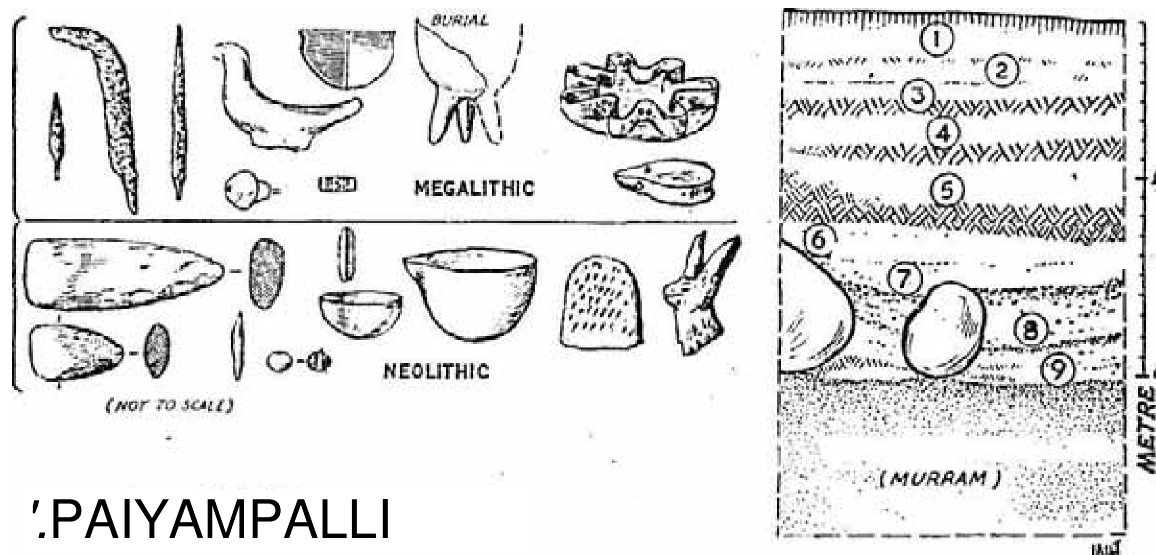


FIG. 6.

revealed two phases A and B in Period I. Phase A, represented by layers 8 and 9, contained bone tools and short blades of jasper, agate and chert, besides ground stone axes. Layers 7 and 7 A formed the latter Phase B of the neolithic occupation and contained lesser quantity of stone blades and bone tools. Layers 5, 6 and 6A yielded iron objects and the megalithic Black-and-red Ware as well as the grey ware and polished stone axes of the neolithic facies.

In Site-1, dwelling-pits of varying depths, cut into the natural soil, roughly oval circular and oblong with longer axis along the cardinal points, were uncovered. One of such pits was divided into two parts by means of a row of stones. The larger ones had a landing or ramp-like approach on one side. A dwelling-pit lined with stones along the edges showed two phases of occupation, the earlier marked by a flat stone at the bottom and the subsequent one by a floor made of rammed earth, 50 cm. in thickness. A coarse red ware jar was found *in situ* on the floor. Post-holes along the periphery of a few pits suggested the existence of some sort of thatched superstructure over them. Some refuse-pits too were encountered. Bone tools exemplified by awls, points and scrapers were also found in one of the dwelling-pits besides fragmentary ground axes and short blades of chert and quartz. The ground stone axes revealed all the stages of manufacture, namely, flaking, pecking, grinding, etc. Even unground ones were used as tools, as can be judged from their wear and tear. Generally, the axes with a pointed butt formed the majority, but those with blunted or truncated butt were not wanting. Axe-hammer was an interesting type that occurred not only at Paiyampalli but also in the neolithic sites around Kolar. The mace-heads and perforated stones used as weights of digging stick were of particular interest. For domestic use and agricultural operations short blades

of chalcedony, chert and quartz were used as composite tools. The waste flakes and fluted cores indicated that the blades were made locally (pl. X).

Ceramic contents of Phase A comprised pale grey and burnished grey wares, besides a red ware, found in small proportions. Among other stone objects found in the neolithic levels, mention may be made of querns, mortars, pestles, pounders and pebble-polishers.

In Phase B, the absence of bone tools, an increase in the number of stone blades and the marked preference for built-up huts with wooden posts over the dwelling-pits definitely indicated further development in the economy of the people. The floors were levelled with stone chips and plastered over with ash-mixed earth. Of this Phase, the principal pottery was red ware, though the use of grey ware also continued. However, still later, in layers 6A, 6 and 5, neolithic and megalithic wares were found together, the emergence and disappearance of painted pottery (pl. XI) being a significant feature.

All vessels of pale grey and red wares of the pure neolithic levels ware handmade or turned on a slow wheel. The most outstanding type occurring in all the fabrics was the lipped bowl with a round base. It is common to most of the neolithic sites in south India. This type in the pale grey ware was painted in red ochre on the rim. A rare type was a bowl with a short channel-spout. In both the Phases, habitational erosion was prevented through plugging gaps with small stones.

The neolithic settlers of Paiyampalli used to cultivate cereals and pulses. Charred grains, identified as horse-gram *(Khulti),* and green-gram have been found in those levels where a few sherds of megalithic pottery occurred in an essentially neolithic habitation-deposit. The skeletal remains from the neolithic levels represented animals of the bovid group, sheep, spotted deer, fowl, pig, jungle cat and rhinoceros. Swamps and thick jungle in the neighbourhood of Paiyampalli are suggested by the presence of bones of rhinoceros.

Period II represented the megalithic culture and the habitation thereof extending over Site-1 and Site-2. Within a total occupational deposit, varying from 1 to 1.50 m. in thickness, three successive floors with post-holes were encountered in Site-2. The huts were generally circular, oval and oblong on plan. The circular houses varied from 1.5 to 3 m. in diameter, while the oval and oblong ones measured 1.7 to 4 m. along their longer axis. In a number of instances, the floor was made of stone chips covered with *murram,* invariably plastered with lime. Occasionally, a rubble-flooring was also provided on the periphery of the house. Only in two cases, foundation wall of rubble could be seen. The houses usually consisted of a single room, but in Site-1 a double-roomed house was also met with. A unique example of a perforated stone base, provided for supporting the thatched-roof, also came to light.

Among the interesting antiquities found in the megalithic habitation, mention may be made of conical objects in terracotta arranged in groups of three, with a single exception in stone, having perhaps some ritualistic significance.

The megalithic pottery of Paiyampalli is similar to that of other megalithic sites, except in respect of the abundance of a comparatively thin but coarse red ware, painted in chocolate or light-brown, met with at the habitation area, as distinct from the orange colour painting found on the burial pottery of the same site. The vessels were painted on the exterior only. The paintings on these pots, however, display an elementary attempt of the megalithic potter to decorate with pigments without any proper scheme. In a few cases human, and plant figures have been drawn symbolically.

The three main ceramics of Period II were the megalithic Black-and-Red Ware, all-black and the red wares. The main types in the Black-and-Red Ware were the bowls with vertical or straight sides and a round or sagger base. Some of them had a ribbed exterior. Tulip-shaped vessels and jars with a flaring or convex neck also occurred in this fabric. Funnel-shaped lids appeared as an interesting type in the all-black ware, while ring-stands of hour-glass type, tall three-legged vases, pyriform storage jars with a round base formed the main types in the red ware. The vessels of the Black-and-Red Ware had invariably a crackled surface. In the late levels of Period II, the Russet-coated Painted Ware also made its appearance. Decoration by incision, applique and stamping technique was resorted to, the designs being nail-and finger-tip patterns, palm leaf, wavy lines and triangular notches. A leaf design was also stamped occasionally. From the enormous quantity of iron slag and ore found all over the site, it can be concluded that the megalithic people smelted iron and produced a large variety of tools and weapons locally. Sickles, spears, chisels, nails and axes were found in the habitation area. A rectangular axe measured 27.5 cm. in length, 10 cm. in breadth and 3 cm. in thickness. Two stones axes were also found in megalithic levels.

The personal ornaments of the people included bangles of glass and terracotta, beads of glass and crystal and terracotta and ear-ornaments. A stone mould of a goldsmith, found in the excavation, proved that ornaments were cast. A unique type of terracotta lamp, circular in shape with eight lips for wicks, was used by the megalithic people.

A preliminary ground survey of the 'U'-shaped valley, flanked by the hills Talatappamalai and Vontigudda, brought to light a large number of rock-shelters, formed by massive boulders juxtaposed against one another at different levels on the hill-slopes. Of these five were found to contain 0.50-m. to 1-m. thick habitational deposit, yielding neolithic and megalithic pottery and stone tools. In addition, scores of cairn-circles ranging in diameter from 3 to 10 m. were also found in the valley. Three of them, Megaliths 1-3, were excavated, details of which are as under.

Megalith-l.—A cairn-circle situated at the foot of the Talatappamalai to the south of Site-I had an external diameter of 6.3 m. In the course of the excavation, it became clear that the skeletal remains and grave furniture were deposited within a stone-lined pit, ovoid on plan, which could be traced to a depth of 50 cm. It was noticed that a thin layer of greyish earth with lime speckles was spread over the bedrock to form the floor. After depositing bones, earthen pots and iron objects, the pit was filled.with *murram* and finally covered with rubble. Except for a few extant stone slabs lining the pit, no other lithic appendage was encountered. The skeletal remains, found in a disarticulated position, belonged to two individuals. One of them was about fifty years of age. It was interesting to find that some pots were kept upside down over the skeletal remains. Out of nineteen pots recovered from the grave-pit, one was a three-legged vase. Other items of grave furniture included an iron arrow-head, a fragment of a spear-head and a terracotta bead.

Megalith-2. This was completely ransacked.

Megalith-3. To the west of Site-2, a cairn-circle, designated here as Megalith-3 was found on an artificial mound raised on an elevated ground with a height of

2 m. from the surrounding plain. The cairn-circle measured externally 8.2 m. in diameter, while the grave-pit measured 3.2 m. with a depth of 03 m. Some of the circle-boulders and a part of the rubble packing were missing. A terracotta sarcophagus having twenty-four legs and containing disarticulated bones was placed in the pit which was internally stone-lined. As many as eighteen iron arrow-heads and some earthenwares were deposited around the sarcophagus and it was finally covered with earth. The pit itself was sealed by rubble. Another layer of rubble was provided right up to the edge of the circle to serve as a tumulus. From the disturbed position of the stone-lining and the absence of the lid of the sarcophagus, it appeared that the grave was ransacked some time after the interment. Other contents of the pit were large dishes of the all-black ware and jars and bowls of the Black-and-Red Ware.

In addition to the wares mentioned above, the burials yielded a thick coarse red ware often decorated with incised and applique designs. The main types in this ware were ring-stands, vessels with a collared or beaded rim, conical vases with pointed bases and jars with excurved rim. The Black-and-Red Ware types included the tulip-shaped vase or basin, bowl with a bevelled rim, shallow dish and conical vase. A funnel-shaped lid was the only type noticed in the all-black ware. Significantly enough, painted pottery was conspicuous by its absence in the burials. Graffiti marks were seen on the pottery from the habitation area as well as from the cairn-circles.

In conclusion, it can be said that the excavation at Paiyampalli has provided a firm datum for the southernmost non-metal-using neolithic phase.

32. EXCAVATION AT URAIYUR, DISTRICT TIRUCHCHIRAPPALLI.— The Department of Ancient History and Archaeology, University of Madras, continued excavation at Uraiyur, at three localities, viz., URY-7 in the compound of the Uraiyur overhead water-tank; URY-8 in the premises of a private bungalow, about 91 m. to the north west of the former; and URY-9, about 91 m. to the south-east of URY-7.

As in the previous season (1965-66), this year too the three trenches revealed a succession of three occupational periods ranging from the early centuries of the Christian era to late medieval times.

Period I was characterized by the occurrence of the Black-and-Red, Russet-coated Painted and Rouletted Wares. Shapes comprised bowls with a rounded body, carinated either at the waist or at the shoulder, flat dishes, chalices or bowls with low pedestals, ring-stands, lid-*cum*-bowls, besides water-jars. A few sherds also preserved lightly scratched graffiti marks, while some had Brahmi letters (pl. X B), palaeographically assignable to about the first or second century of the Christian era. Other objects found from this Period included shell and -paste beads, terracotta gamesmen and bone points.

The principal pottery of Period II was the red-slipped ware, while the Black-and-Red Ware was used in limited quantity. Towards the latter part of this Period was introduced an ill-fired coarse red ware which became the dominant ceramic tradition throughout south India in medieval times. The normal shapes in the red ware included globular pots with narrow necks and small mouths, cooking pots, bowls with tapering sides and incurved rims and a variety of dishes. The Black-and-Red Ware entered a phase of devolution.

The occurrence of certain holes of 15 to 20 cm. in diameter filled with sand, charcoal and ashes in three distinct but closely successive levels in URY-8, was suggestive of their association with some kind of ritual.

Period III, the last occupational stage at the site, was characterized by prolific use of an ill-fired crude red ware with an unslipped surface, consisting of globular jars, cooking pots, vases, bowls and dishes of different shapes. Other antiquities of the Period included large numbers of glass, paste and stone beads, a few bangle pieces and terracotta figurines (pl. X A).

MAHARASHTRA

31. EXCAVATION AT CHIRKI NALA NEAR NEVASA, DISTRICT AHMEDNAGAR.. - In continuation of the earlier work by Dr. Corvinus under the scheme 'Exploration for the Remains of Early Man in India', sponsored by the Council of Scientific and Industrial Research, New Delhi, Dr. R.S. Pappu of the Council, jointly with Dr. S. G. Supekar of the Deccan College Post-graduate and Research Institute, Poona, conducted a small-scale excavation at an Acheulian site on the right bank of the Pravara at Chirki Nala near Nevasa, under the general guidance of Professor H. D. Sankalia.

The stratigraphic sequence observed on the right bank consisted of amygdular basalt at the base overlain by rubble gravel, about 0.7 to 1-m. thick, and further capped by sandy gravel having a maximum thickness of 7 to 8 m. The sandy gravel at places was cross-bedded, well-cemented and often intercalated with silt and clay. The rubble gravel, made up of boulders and pebbles, formed due to spheroidal weathering of basalt, and a few large blocks mostly of grey compact basalt, brown amygdular basalt and dolerite, formed the horizon of the Early Stone Age industry. A few nodules of chalcedony and zeolites also occurred in the rubble gravel. The rubble rested on the uneven surface of the amygdular basalt. The sandy gravel yielded mainly tools of the Middle Stone Age industry and a few unrolled tools of the Early Stone Age.

Excavations were conducted on the right bank of the Pravara where the thickness of the Middle Stone Age tool-bearing gravel was found to be minimum. In all, two trenches (A and B), oriented in north-south direction and measuring 10x3 m. and 5 x 3 m. respectively, were laid out. Trench B was situated at a distance of about 8 m. from Trench A at a slightly higher level (about 1 m.). The Early Stone Age horizon was reached in both the trenches after digging for about 1 m. In all, one hundred and forty-one tools, consisting of varied forms of handaxes, cleavers, tool-types like choppers, scrapers and hammer-stones were gathered from the top layer of the rubble gravel of Trench A. The implements exhibited superior workmanship. There was preponderance of finished tools in the area exposed so far.

The common raw materials employed were grey compact basalt and dolerite which are locally available. The dolerite seems to have been brought from the neighbouring dyke exposures, situated within a distance of about 10 km.

From the evidence available at present, it appears that the site under study is somewhat different from Stone Age sites commonly found in India. Generally, the sites located in the riverine environment are of secondary nature; the tools embedded in such pebbly gravel deposits are disturbed, transported and redeposited. In the case of the present site, the morphological character of the tools as well as associated rubble suggests that they have undergone very little transport from their original place of deposition. The excavated portion together with the surrounding region possibly represented a temporary camping site of the Early Stone Age Man. The presence of a few fossil bones in the excavated portion was also indicative of human activity in the region. Taking into consideration all these facts, it can be inferred

that the Chirki site is relatively undisturbed one and that Early Man camped here on the rock-cut terraces facing the Pravara river.

34. EXPLORATION IN DISTRICT AURANGABAD.—The Director of Archives and Museums, Government of Maharashtra, discovered at Akola structural remains of the Satavahana period, showing traces of good drainage-system, and monuments of medieval, Indo-Muslim and Maratha times.

Dr. G.G. Majumdar and Shri S.N. Rajaguru of the Deccan College Post-graduate and Research Institute, Poona, examined the excavated trenches at the Jayakwadi Dam Project on the river Godavari near Paithan and succeeded in collecting tools *in situ* along with a semi-mineralized bone of *bos* from the gravels exposed almost in the basal portion of the 25-m. thick older alluvium. The location of these trenches, about 305 m. away from the present right bank of the Godavari, and the existence of Middle Stone Age tools in the lowermost strata of the older alluvium suggested that the older alluvium in the Godavari and its tributaries like the Mula and the Pravara most probably did not date beyond the Upper Pleistocene. The evidence obtained at Paithan thus confirmed the findings from the Mula Dam excavation at Rahuri where the buried older alluvium has been dated to about 30,000 years B.P. on the basis of the Carbon-14 determination.

35. EXPLORATION IN DISTRICT CHANDA.—Shri B.K. Sinha of the South-eastern Circle of the Survey found Early and Late Stone Age sites at Kanpa in Taluk Brahmapuri and Late Stone Age sites at Bopapur, Chinchala, Chincholi, Erwa, Mowad, Pipalgaon and Tembhurda in Taluk Warora; Bikli in Taluk Brahmapuri and Wirsi in Taluk Garchiroli.

He also found : (i) megalithic stone circles at Aturdi and Khemjai; (ii) medieval sculptures depicting Mahishasuramardini and Vishnu at Takli; and (iii) late medieval temples at Bhisi in Taluk Warora.

36. EXPLORATION IN DISTRICT DHULIA.—Shri S.A. Sali of the South-western Circle of the Survey in the course of his exploration in the District made geomorphological studies in the Tapti basin.

The tilted lithologic blocks bounding the south tributaries of the Tapti, viz., the rivers Panjhra and the Buray and their tributaries, suggest that they occupy rift valleys.

An abrupt northerly and north-easterly course, obtained by the initially eastward flowing rivers Panjhra, Buray, Shivnad and the Pan or Gokul Nala, may be attributed to a fracture along a line joining Dhulia, Lonkheda and Ashta.

The knick-points, observed at several places in the examined parts of the river and nullahs, are marked by rapids, waterfalls and gorges caused by the recession of waterfalls. Actual observations coupled with a study of longitudinal profiles (gradient calculated at an interval of 50-ft. (15.24 m.) contour in the Survey of India topo-sheets of these rivers and nullahs) showed that there is some concordance in the heights of these knick-points above mean sea-level. Thus, they lie at a height roughly between 2,200 ft. (670.56 m.)and 2050 ft. (624.84m.), 1850ft. (563.88 m.) and 1750 ft. (563.4 m.), and 1450 ft. (441.96 m.) and 1350(411.48 m.)respectively on the rivers Buray, Kan and Panjhra; between 1000 ft. (304.8 m.) and 950 ft. (289.56 m.) on the rivers Buray, Panjhra, Amravati and Shivnad;between750 ft.(228.6m.) and700ft.(213.36m.)on the rivers Buray, Panjhra and Amravati and the Bhad Nala and the Sukar Nala; and between 550ft.

(167.64 m.) and 500 ft. (152.4 m.) in the valleys of almost all the rivers and nullahs along the southern margin of the Tapti plains.

The area of waterfalls, lying between 1850 ft. (563.88 m.) and 1750 ft. (533.4 m.) above mean sea-level at Mahunji Pada on the river Buray and at Malangaon Pada on the river Kan, shows excessive jointing of fracturing and crushing, an evidence suggestive of faulting.

Evidence of a 'hanging valley' was observed in the area of Kaothe gorge, opposite Jirethal on the river Kan, lying at a height between 1450 ft. (441.96 m.) and 1400 ft. (426.92 m.) above mean sea-level and on the Longitude 74°16' E. along which a tectonic disturbance appears to have taken place.

The lacustrine conditions suggested by the occurrence of massive deposits of laminar sands, probably owing to the damming up of the river by a transversely running dyke near Jharala Pada on the river Shivned, seem to have come to an end due to earth movements which appear to have occurred probably prior to the arrival of the Late Stone Age man on the scene, as is indicated by the presence of Late Stone Age sites at Ojharda and Ashta near the edges of the gorge.

At Pechribari Pada, after the deposition of the current-bedded sandy fine gravel, earth-movements appear to have disturbed the course of an initially north-westerly flowing nullah causing it to turn towards north-east and the cutting off of its original lower reaches from its middle reaches. A displacement in the ends of a dyke hill in its gap was also noticed here.

In many sectors, deposits of older cycles lie away from the present channels of the rivers or nullahs and the area between these deposits and the present channels is filled up with the deposits of the younger cycles deposited during successive periods of aggradation, but separated from each other by a period of erosion. Wherever observations were possible, e.g., at Dahivel, Bhondgaon and Amli on the river Kan, the deposits of the older cycles were found to rest upon the rock-surface lying at a higher level than that upon which rest the deposits of the younger cycles. Yet, it appears that, because the deposits of the younger cycles seem to have reached the height of that of the older cycles or even higher up, the valleys look flat and cease to have a terrace-like appearance. Lateral shifting of the streams due to either slow earth-movements or their rising up by aggradation seem to be the cause of this phenomenon, although the former appears to be more plausible, at least in some cases.

37. EXCAVATIONS AT KHAPA AND TAKALGHAT, DISTRICT NAGPUR.—Dr. S.B. Deo of the University of Nagpur carried out excavations at Khapa and Takalghat which are situated opposite each other on the river Venna and contain megalithic stone-circles and habitational deposits, respectively. Surface exploration at Takalghat yielded black-painted red ware, the black-and-red ware and micaceous red ware, akin to the pottery from Paunar, Junapani and Kaundinyapur in the Vidarbha region of Maharashtra, The excavations at Khapa and Takalghat were, therefore, undertaken with a view to tracing cultural links between Paunar and Takalghat on the one hand and to connecting habitational deposits at Takalghat with the stone-circles at Khapa on the other.

At Khapa, six stone-circles, the largest with a diameter of 23 m. and others between 12 and 14 m., were exposed. Inside was found rubble and clay filling with an average thickness of 1.3 m. containing medium-sized pebbles capping brownish-black clay. Remains of human and animal bones of the *Equidae* family in fragmentary

state with badly smashed pieces of the micaceous red and black-and-red ware, similar to those unearthed at Takalghat, were found in the centre of each circle. No painted pottery was noticed in any of them. Objects of copper and iron were recovered from the centre and the filling together with countless carnelian beads, both etched and plain.

Noteworthy among the iron objects were a sword, a spear-head, adzes, drills, frying pans and fragmentary blades (pl. XII B). Copper objects were represented by solid bangles, pokers, adzes and drills. Among copper objects deserving special mention was a dish with a boss in the centre, covered with a conical lid, and crowned by four birds (pl. XII A). Another noteworthy object, which was found with the bones of a horse, was an ornament of thin copper sheet resembling the face of a horse with several conical knobs riveted on it with iron and a score of hollow tubes suspended from it (pl.XI). These remarkable copper objects do not seem to have any parallels in the megaliths of south India.

Takalghat (TKG-1), a mound having a habitational deposit of about 8 m., belonging to a single culture, was characterized by the occurrence of a painted pottery, the black-and red ware, micaceous red ware and coarse red ware. The painted pottery was essentially a red ware with ill-baked core and thick red slip bearing almost entirely geometrical patterns painted in dull black. The shapes comprised globular pots, lids-*cum*-dishes, basins and storage pots of medium size. The black-and-red ware had burnished surface, thin sides and dull black core. The shapes consisted mostly of rimless bowls. No typically megalithic shapes were encountered, though a few sherds bearing graffiti marks were available. The micaceous red ware was distinguished by profuse mixture of mica chips in the clay, the principal forms being pots with globular body and funnel-shaped mouth, dough-plates and shallow lids. These classes of pottery continued throughout the entire occuption at Takalghat.

Six floor-levels were recorded in the excavation. The floorings were made of a thick black clay bedding-capped with compact brownish clay which was overlain by lime. Post-holes and mud walls were also found associated with these floorings. Probably, these habitations were destroyed by fire. The cultural equipment of these people consisted of iron spears and drills and etched and non-etched beads of carnelian and agate, besides fragmentary copper pieces.

38. EXPLORATIONS IN DISTRICTS NASIK, POONA AND SATARA.—Shri S.N. Rajaguru and Dr. Corvinus of the Deccan College Post-graduate and Research Institute, Poona, explored the upper reaches of some of the streams, like the Pravara, Godavari, Mula, Ghod, Bhima, Indrayani, Pauna, Mula-Mutha and the Krishna in western Maharashtra, to collect information on the tectonic and climatic history of the region in the Pleistocene. All these streams, excepting the Krishna, have yielded evidence for the existence of Middle Stone Age man even in the very high rainfall zone of the Western Ghats.

The presence of pot-holes at successive levels *i.e.* 6-8 m., 10-15 m. and sometimes at 25-30 m. from the present bed-level of the Mula-Mutha (near Paud), Pauna (near Kale Wadi), Indrayani-Ulhas (near Lonavala and Khandala), and the Bhima (near Tokawde and Bhorgiri), suggests that the source-regions of these streams had definitely been uplifted possibly in the Pleistocene Period. The existence of waterfalls and gorges between R. L. 685.8 m. and 701 m. in the valleys of the Pravara and its tributaries like Adula and Mahalungi and the buried valleys of the Mula and the

Pravara, the presence of unusually thick alluvium in the upper reaches of the Pravara proper in comparison with other valleys in the region and the presence of scrap face all along the southern boundary of the Godavari valley possibly indicate that this region was tectoncially not so stable as thought by earlier geologists and archaeologists. These observations, based as they are on geomorphic data, have been fully vindicated by the recent Koyna earthquake, which has been proved to be of tectonic origin. Because of this somewhat tectonic unstability of the region the earlier inferences drawn regarding the changes of climate during the Pleistocene Period need complete reconsideration.

In the Bawdhan nullah, a southerly tributary of the Krishna near Wai, District Satara, a redeposited red brown fossil-soil, about2-3m. thick, was found to be sandwitched between coarse sandy heavily kankarized silty alluvium, indicative of a break in the depositional sequence of late Pleistocene alluvium in the Krishna valley near Wai.

39. EXCAVATION AT TER, DISTRICT OSMANABAD.—The Director of Archives and Museums, Maharashtra State, resumed excavation at Ter, revealing the cultural sequence from pre-Mauryan to modern times. Both vertical and horizontal digging was under taken; the purpose of the latter was to ascertain the mode of living, house-plans, etc. of the Satavahana period.

Horizontal excavation revealed the base of a large brick *stupa,* 26 m. in diameter, and resembling a *chakra* on plan; it had circular ribs of brick with eight spokes and four *ayaka* platforms and a *pradakshina-patha.* The *stupa* can be dated to the first half of the second century A.D. on the basis of an inscription recording the names of masons and a coin of Pulumavi. Of the same date, an apsidal brick temple with a *stupa* within and wooden *mandapa* in front was also discovered. Evidence for its being repaired thrice was also available. The structure could also be dated on the basis of a coin of Pulumavi.

Other antiquities comprised terracotta and kaolin figurines with typical ornaments and hair-dress, terracotta lamps, bangles, ear-rings, Roman clay bullae, a terracotta disc representing Sun-god; a lion carved in shell, a Roman glass bottle of the Mediterranean type and beads of various shapes in carnelian, agate, lapis lazuli and shell.

40. EXPLORATION IN DISTRICT SHOLAPUR.—Dr. (Smt.) Shobhana Gokhale found a stone mace-head, one neolithic axe and black-and-red pottery at Narayana-chinchali, 9 km. to the south of Pandharpur.

41. EXCAVATION AT PANDHARPUR, DISTRCT SHOLAPUR.—Dr. M.S. Mate and Dr. M. K. Dhavalikar, assisted by Sarvashri R. B. Sapre and Y. S. Rasar of the Deccan College Post-graduate and Research Institute, Poona, carried out a small-scale excavation at Pandharpur with the twofold aim of tracing the antiquity of the place and uncovering pottery and other antiquities belonging to a period extending from A. D. 1000 to 1200.

A cutting 8 x 9m. in area, excavated to a depth of 2.5 m., revealed three phases of occupation, datable between A. D. 1000 and 1200.

Phase I was marked by the presence of a black-grey ware bearing stamped designs in the form of small figures on the tip portions of *handi*-like vessels and bowls. An important find from this Phase was a beautifully moulded twin hearth resting right on the natural soil.

Phase II yielded coins and associated pottery of the Indo-Islamic period.

PhaseIII showed structural remains consisting of a complex of massive stone walls, from the foundation of which coins belonging to the early Maratha period, corresponding to the later half of the seventeenth century, were recovered.

MYSORE

42. EXPLORATION IN DISTRICTS BELGAUM, BIJAPUR AND SHIMOGA.—Shri A. Sundara of the Deccan College Post-graduate and Research Institute, Poona, in the course of his exploration, discovered (i) five chalcolithic sites with grey pottery of the Brahmagiri fabric, plain and painted red were, comparable to the 'Savalda ware' of the Tapti Valley; and (ii) microliths, etc. at Kudchi, a railway station on the Bangalore-Poona section of the South Central Railway in Taluk Raibhag, District Belgaum. Remains of two 'ash munds' were also located in two of the sites.

At Hatthargi in Taluk Hukkeri, District Belgaum, a temple, with *sikhara* of the Nagara type, datable to the tenth-eleventh century A.D., was found.

On the flat top of a quartzite sandstone hill near Kaladgi town in Taluk Bagalkot, District Bijapur, a site with about forty megalithic structures built of quartzitic sandstone, laterite and conglomerates was discovered. Amongst the megaliths, two hitherto unknown types in India were also brought to light; one of them had a port-hole in the circle stone connected with the chamber through a passage.

From the terraces of a granite outcrop, locally called Guddey Mardi in the vicinity of a village Sulebylu near Shimoga town, a few wornout grey ware sherds of the Brahmagiri fabric and a fine fluted core on chalcedony were collected.

43. EXPLORATION IN DISTRICT DHARWAR.—Shri A. Sundara of the South-western Circle of the Survey discovered in Taluk Ran neolithic sites at Mannur, Menasgi, Nidagundi, Nidagundikop and Savadi. The above sites have yielded stone axes, microliths on chert including parallel-sided blades and fragments of grey ware of the Brahmagiri fabric. Menasgi is already known for Early Stone Age tools.

The Director, Department of Archaeology, Mysore State, during a village-to-village survey discovered sites yielding Early Stone Age and neolithic implements at Wargund and Gudisagar, situated in Taluks Nargund and Navalgund respectively. At Nagarhalli, he found black-and-red pottery. Of the monuments discovered by him, mention may be made of Sankaralinga Temple at Amargol, built of bricks, Vishnu shrine at Navalgund with a fine sculpture of Seshasayi, and triple-shrined temple of Banasankari at Annigeri, datable to the tenth century.

44. EXPLORATION IN DISTRICT GULBARGA.—In course of explorations in the District, Shri K. Paddayya of the Deccan College Post-graduate and Research Institute, Poona, discovered a stratified site of the Middle Stone Age industry at Hagargundgi, on the left bank of the Bhima river. A cliff-section with a maximum height of about 9.6 m. was found exposed on the bank of the river. The basal stratum consisted of a sandy pebbly gravel-deposit varying from 1.5 to 2.4 m. in thickness, disconformably overlain by a 4.6 m. thick deposit of yellow-brown kankary silt, which in turn is capped by a 61 cm. thick deposit of black brown silt. One hundred and eighty-one artifacts (forty-three *in situ* and the rest loose) of the Middle Stone Age industry were collected from the eroded surface of the gravel-deposit. The tools, mostly on chalcedony, com-

prised scrapers, points and borers made on plain and prepared flakes, flake-blades and, to a lesser extent, blades. Apart from these artifacts, the gravel-deposit also yielded fossilized animal bones, consisting of a jaw bone, a shoulder-blade and portions of leg bones, collected from surface, besides an almost complete specimen of pelvis (?) found *in situ.* While the scientific identification is still awaited, from the preliminary observations it is felt that they are the remains of *Bos* (possibly *nomadicus* Falc).

Subsequently, Shri Paddayya, accompanied by Shri S. N. Rajaguru, Drs. R. S. Pappu, G. G. Mujumdar and Z.D. Ansari, revisited the above site and further explored Taluk Shorapur of the same District and the adjoining parts of District Bijapur. The main aim was to find out the stratigraphical relationship between the Middle Stone Age and blade-and-burin industries found in a mixed condition by earlier workers at the well-known factory site of Salvadgi. A section was exposed in the field containing the workshop-site. However, this did not prove to be of much value, because the artifacts were again found in a mixed condition upto a depth of about 90 cm. Hence, the stream Don and a few other tributaries of the Krishna were explored, which resulted in the discovery of stratified Middle Stone Age sites at three places, viz. Hunsgi, Hegratgi and Hurhatti. Here, the artifacts were obtained from well-cemented sandy pebbly gravels lying at the base of sections attaining a maximum height of about 6 m. The assemblages from these sites were almost totally devoid of blade-tool element. This evidence clearly proved that the blade artifacts, occurring mixed up with those of the Middle Stone Age industry at the site of Salvadgi, constituted a separate industry posterior to the typical Middle Stone Age industry.

The same party also discovered a Middle Stone Age site at a place called Devapur on the left bank of the river Krishna. The artifacts here were found in a gravel of about 1.5 m. thick, at a height of about 13.7 m. from the bed of the river.

So far, it has been assumed by several geologists that this type of high-level gravels are pre-Pleistocene. The present evidence refutes this view and suggests that they, in all probability, belong to the Pleistocene Period.

In the course of explorations of the same District, the Director, Kannada Research Institute, Karnatak University, Dharwar, discovered an extensive Buddhist site containing a *stupa* with a relic casket, sculptures, inscribed stones, pillars, bricks and pieces of pottery. About twenty inscriptions, engraved in Brahmi characters and Prakrit language belonging to *circa* second century A.D., recorded the names of Buddhist devotees and donors comprising officials like minister and superintendent of records, members of the monastic order and ordinary laity. A stone statue of Yaksha was also found.

45. EXPLORATION IN DISTRICT KOLAR.—The Excavations Branch of the Survey, under Shri S. R. Rao, assisted by Sarvashri K. Krishnamurthy, G.V.S. Rao, I. K. Sarma, C. Margabandhu and J.P. Shrivastava, undertook intensive exploration of the neolithic and megalithic sites in the District with a view (i) to linking up the neolithic cultures of the Pennar (District Kurnool) and Palar (District North Arcot) basins and (ii) to ascertaining whether the painted pottery tradition of Kurnool region extended into the Kolar region, where a few neolithic settlements were noticed in the course of last year's exploration. As a result of the survey, three important neolithic-*cum*-megalithic sites and a few megalithic sites as noticed below, were discovered.

Banahalli which lies at a distance of 2km. fromTekal,a railway. Station on the Bangalore-Bowringpet section of the Southern Railway, in the upper reaches of the Palar river, probably represents the largest neolithic-megalithic settlement in south India. Nearly half of the total habitation-deposit of 5 m., seems to be neolithic in content. The terrace at the foot of the castellated granitic hill marks the ancient settlement, originally covering an area 300 x 100 m., and representing an important open-air station of the neolithic folk, using a variety of tools, viz. axes, axe-hammers, chisels, digging-stick-weights, hoes, grinders, etc. A part of the present village including the school building stands on the mound of which the central portion is intact. The section exposed in the pits on the periphery of the mound revealed a 2-m. thick deposit above the natural soil, containing ground, chipped and polished stone axes, pale and burnished grey ware and a coarse red ware. The megalithic Black-and-Red Ware and iron objects were found in the upper part of the deposit.

Overlooking the terrace, were seen several rock-shelters, wherein was found an undisturbed ancient habitation-deposit. Unlike the rock-shelters of Kendatti and Kadat-tur (described below), the Banahalli shelters yielded a large quantity of neolithic handmade pottery and stone implements. In comparison with other rock-shelters, megalithic ware was found in lesser quantity at this site. The ceramic types of the neolithic phase included bowls of pale-grey ware with or without a pinched lip, the latter painted in red ochre, besides bowls of grey ware and jars.

Doda Kadattur (13°01'N.; 77°58'E.), situated at a distance of 22 km. from Kolar on the Kolar-Malur road, represents an open-air site with a couple of rock-shelters, yielding neolithic tools and pottery. Dwelling pits form the most important feature of this settlement. Some of them have been opened up by the villagers to collect stone axes, which are available in large numbers. Other contents of the pits comprised burnt rice husks and ash. The walls of some of the pits showed traces of mud plaster. Fully-ground stone axes of pointed-butt type, triangular axes with ground edges, axe-hammers with a plano-convex cross-section and blunted butt-end were among interesting tool types obtained from the site. Patinated flakes also occurred in considerable quantity. The ceramic wares used by the neolithic people included a pale grey ware and an ill-fired coarse and gritty red ware. The bowl with ochre painting on the rim was a noteworthy type in the pale-grey ware. Megalithic pottery, including the Black-and-Red Ware and a coarse red ware, were also noticed.

A large number of megalithic cairn-circles were noticed 11 km. from Hosokote, on the Hosokote-Malur road, at Gonakanahalli. Apart from megalithic Black-and-Red Ware, a few patinated flakes of basalt and fragment of a ground stone-axe were found on the surface, the occupation debris being less than 1 m. thick and rather restricted in character.

Another open-air site, located in close proximity to the gold-bearing regions of Kolar, was found at Kadattur. It may be recalled that from the ancient gold workings of the Champion Reefs (District Kolar), a pale grey ware and Black-and-Red Ware, identifiable as neolithic and megalithic wares respectively, were recovered in the early thirties of this century.

Kendatti (13°07'N.; 78°02'E.), one of the neolithic-megalithic sites is located at the foot of the granitic hill near the village of the same name at a distance of 56 km. from Bangalore on the Bangalore-Kolar road. A large terrace at the foot of the hill and several rock-shelters here seem to have been occupied by the neolithic and megalithic peoples. The surface finds collected from neolithic included the bur-

nished grey ware and coarse red ware vessels, ground stone axes, both with pointed and blunted butts, axe-hammers, mullers and pounders. The lipped bowl appeared to be an important ceramic type in the grey ware. Iron slag, sherds of the Black-and-Red Ware, a red-slipped ware and the all black ware, belonged to the megalithic levels. Ring-based and round-bottomed bowls and dishes were the main types in the Black-and-Red Ware, while large storage jars were common in the red ware. A few cairn-circles have also been found in the fields.

Another neolithic-*cum*-megalithic settlement was found at Tekal at the foot of a hill with a 2-m. thick occupation debris of the megalithic period. It yielded a polished stone-axe and a few sherds of the pale grey ware. The neolithic occupation was perhaps limited to rock-shelters. Near Tekal railway station several cairn-circles were also noticed.

ORISSA

46. EXPLORATION IN DISTRICTS DHENKANAL, SAMBHALPUR —The Superintendent of Archaeology, Government of Orissa during an exploratory survey of the Brahmani and Tel river valleys discovered the following: Kanakesvara group of temples of *panchayatana* pattern, originally datable to the eighth century, at village Kualo in District Dhenkanal; Bhringesvara Siva temple, resembling Lakshmanesvara group, Bhubaneswar, at Vajrakot on the bank of the Brahmani in District Dhenkanal;and remains of Kalesvara and Kausalesvara shrines at Vaidyanath on river Tel in District Sambhalpur. Remains of a sculptured pillared *jagamohana* formed a special feature of the Kosalesvara temple. Besides, sculptures of Vishnu as Seshasayi, and images of Mahishamardini and Hari-Hara at Sarang and Bhimkhand, and at Bhimanagari in District Dhenkanal were also noticed respectively.

RAJASTHAN

47. EXPLORATION IN DISTRICTS AJMER, BHARATPUR, PALI AND UDAIPUR.—The Director of Archaeology and Museums,Rajasthan, discovered: a step-well, datable to the fifteenth century at Salemabad, District Ajmer; medieval temples at Narlai and Nadol in District Pali; a fine temple of the tenth century at Auva; and a temple-group belonging to the twelfth century at Macchind in District Udaipur. Seventeenth century murals were found at Satvas in District Bharatpur.

48. EXCAVATION AT TILWARA, DISTRICT BARMER.—A joint expedition of the Deccan College Post-graduate and Research Institute, Poona and the State Department of Archaeology, Rajasthan, respectively represented by Dr. V. N. Misra and Shri Vijay Kumar, with some collaboration from Dr. L. C. Leshnik of the Sudasien Institute of the University of Heidelberg, conducted a small-scale excavation at the microlithic site of Tilwara.

The village of Tilwara (25°52'N.; 72°50'E.), is located on the left bank of the Luni river, about 16 km. south-west of the town of Balotra. The microlithic site lies on a low sand dune about 2 km. south-west of the village in the old bed of the Luni river. One cutting, measuring 16 x 5 m. divided into six trenches, was laid out in the centre of the mound in a north-south direction.

Trenches I-II were dug to a depth of 50 cm. and III-VI to a depth of 42 cm. A trial pit on the western edge of the main cutting revealed that microliths in small numbers continued to occur at a depth of 90 cm. The effective habitation deposit, however, was confined to the top 50 cm. only.

Five distinct living-floors were found. In Trench II, a floor extending to an area of 2 x 2 m., occurred just below 7 cm. from the surface. The surface was profusely littered with microliths and potsherds.

Trenches IV-V, a floor exposed at a depth of 14 cm. from the surface was represented by a large number of stones spread over a wide area. The stones were placed at varying distances, singly or in clusters, the largest number in any single cluster being five. A large part of these stones, arranged in a circle with a diameter of about 31m. probably marks the outline of a hut. It may be incidentally mentioned that the circular huts even today form a popular house-pattern in this region. Pieces of burnt daub indicated that the huts were extensively plastered with mud.

About 2 m. away from the main circle, on its northern side, occurred a 20 cm. deep ash pit with a diameter of 70 cm. at the top but narrower towards the bottom. The pit yielded, besides ash, charred sherds including those of a small *handi-like* pot, charred and uncharred bones and a few microlithic flakes.

Another cirlce of stone with a diameter of 2.25 m., noticed at a depth of 28 cm. in Trenches M-IV, had closely clustered stones. Stray stones, apparently displaced from their original alignments, occurred in all trenches at varying depths.

Two circular ashy patches, about 10 cm. thick, were exposed at a depth of 28 cm. in Trenches I and II. They yielded only darkish sand besides microliths and bits of pottery. Perhaps, these patches marked the spots where fire had been lit over a prolonged period.

Another floor was marked by the occurrence of a flat-topped quern, kept in an inclined position with a muller over it, at a depth of 35 cm. below surface in Trench V. These household objects thus appeared to have been left *in situ.*

The last floor, covering an area of 60 x 45 cm., was partly exposed at the north-eastern corner of Trench I. It was littered with broken animal bones, apparently the leftovers of a meal, a few microliths and a solitary slingstone.

The microlithic industry was uniform throughout the deposit with greatest concentration between 20 and 35 cm. depth below surface. The main tool-types of the industry consisted of backed blades, obliquely-blunted blades, lunates, triangles, points and a few trapezes, displaying a remarkable perfection in form and workmanship. However, between the depth of 20 and 30 cm. below surface there was a predominance of 6 to 10 cm. long blades. Quartz, quartzite, chert and rhyolite served as the raw material for the microlithic industry. While quartz was obtained in the form of small pebbles from the river bed, other materials were probably quarried from the Malani formations, a few kilometres to the east of Tilwara.

Pottery was noticed throughout the deposit, but was profuse up to 15 cm. from surface, i.e. just above the horizon which had a concentration of microliths. The incidence of pottery was small below 15 cm. and decreased further downward. The pottery was wheel-made, and comprised two wares, grey and red. The grey ware vessels, consisting of wide-mouthed *handis* of varying sizes, had a thin dull grey slip and a darkish core. The charring of the bottoms showed that this pottery served as a cooking ware. Incised designs decorated the flat rims of the *handis.* The red ware, having a pale red slip and a reddish core, was represented by *lota-like* vessels and shallow dishes. Decoration was not common in this ware. Sophisticated in character, the pottery at Tilwara was totally different from the pottery of Bagor (below, p. 41).

Small shells, not yet identified, occurred in large numbers, especially in the upper levels. Animal bones were not so profuse as at Bagor.

Bits of shapeless iron, stray fragments of glass bangles and fragment of a shell bangle occurred in the upper 10-cm. part of the deposit while the beads of bone and carnelian were found within 30 cm. below surface.

49. EXCAVATION AT BAGOR, DISTRICT BHILWARA.—A joint expedition of the Deccan College Post-graduate and Research Institute, Poona, and the State Department of Archaeology, Rajasthan, respectively, under Dr. V. N. Misra and Shri Vijay Kumar, with some collaboration from Dr. L. S. Leshnik of the Siidasien Institute, University of Heidelberg, carried out a small-scale excavation at the microlithic site of Bagor.

The village of Bagor (25°21'N.; 74°23' E.) is located on the left bank of the Kothari river, about 25 km. to the west of the town of Bhilwara. On a large sand dune overlooking the river lies the site, about 1 km. to the east of the village.

One cutting, measuring 20 x 4 m., was laid out in the centre of the mound roughly in an east-west direction. This was divided into five trenches of 4 sq. m. each, of which an area of about 4 sq. m. in Trenches III and IV was occupied by an older pit.

Trenches I and II were dug to a depth of 54 cm.; III to 66 cm., IV to 2.20 m.; and V to 13.6 m. from surface. Virgin soil was reached only in trench IV. The total habitation-deposit was found to be about 1.60 m. thick. Below 1-30 m. from the surface no floors were traceable. Occurrence of microliths and pottery was noticed throughout the deposit, though the greatest concentration of microliths was between 60 cm. and 1.12 m. Bulk of the pottery, on the other hand, occurred in the upper 60 cm. of the deposit, while below 90 cm. it was positively scarce.

Typologically, microlithic industry was uniform throughout, showing a highly evolved geometric character. The principal tool types were blunted-back blades, obliquely-blunted blades, lunates, triangles (mostly scalene, but some also of isosceles variety), trapezes and points. Flake-and core-tools were rare. Quartz, chert and occasionally chalcedony perhaps acquired in the form of nodules from veins in the gneissic formations of limestone outcrops, served as raw material. On the basis of the occurrence of pottery and iron two phases of microlithic culture may be recognized.

In the earlier phase, pottery was ill-baked haying a gritty micaceous fabric and bearing dull-brown slip in patches. Originally, the slip, as seen on the partially preserved specimens, was of a bright red colour. The shapes in this ware comprised large dishes or pans, basins and bowls, decorated on the exterior with incised patterns, formed by many lines, groups of diagonals and chevrons, sometimes in association with applique bands with cut notches. Other finds from this phase included beads one each of agate and carnelian.

An extended human burial, belonging to this phase was found at a depth of 1 m. from the surface in Trench V, the associated finds being only microliths and potsherds in bits. The body was placed roughly in an east-west direction with head towards the west. All bones except the vertebrae, pelvis and right fibula were present. The skull had been much damaged, possibly due to the weight of the overlying debris.

In the same Trench as many as eight successive floors, paved with undressed stones and pebbles, were found. The stones, mostly schist and occasionally gneiss and quartz,

were often closely packed for making a compact floor. No floor, however, could be exposed to its full dimensions. Large quantities of animal bones and teeth, many hammer-stones and mullers were found on the floors.

In the later phase, the pottery was wheel made and well-baked showing a reddish or greyish core, and largely unslipped brick-red surface. The shapes included straight-necked cylindrical pots, *handi*-like vessels, flat-based bowls and small dishes. This phase also yielded copper and iron objects. Of the latter, two arrow-heads of leaf-shaped variety deserve special mention. Other finds from this phase included beads of semi-precious stones and glass.

Of the later phase, a floor, made of brick-bats and occasional stones was exposed just below the surface, in Trenches I, II and III. Having a thickness of 20 to 25 cm., it occupied an area of 6 x 4 m. Below this occurred another, though less compact, brick floor at a depth of 40 cm. below surface. Associated with this second floor in Trench I was a square enclosure of two courses of dressed stones and brick-bats with a maximum height of 15 cm. The outer side of the enclosure measured 58 cm. No charcoal or ashes were found inside the enclosure nor is there any evidence of charring on the sides of the stones and bricks, thereby discounting the possibility of a hearth. Perhaps it was used for some ritual.

To this level also belonged two walls in Trenches II-III. The larger of these walls, made of large schist blocks, was about 3.25 m. long, 1 m. broad and 0.5 m. thick with its longer axis along east-west. This wall, located in the northern part of Trenches II-III, probably represented only one side of an enclosure. The smaller wall, occurring at right angles to the eastern end of the larger wall, was 1.25 m. long, 35 cm. wide and 36 cm. high. Made of stone blocks and brick-bats, it ended into a circular enclosure at its southern extremity.

Other notable finds associated with this floor included a cylindrical vase, a cache of microliths, kept under an upturned bowl and the lower part of a broken pot containing microliths mixed with sand.

Animal bones, charred and often split open for the extraction of marrow, occurred throughout the deposit, and in larger quantity in the earlier phase. A preliminary examination of a limited material by Dr. (Smt.) D.R. Shah revealed that all the bones belonged to wild animals, comprising bovines, the hog deer, the spotted deer, the *bara-singha,* the Indian wild boar, the Indian jackal, the common Indian rat, the river turtle and the monitor lizard.

50. EXCAVATION AT KALIBANGAN, DISTRICT GANGANAGAR.—The Headquarters Office of the Survey resumed the excavation at Kalibangan for the eighth season. The work, as in the previous seasons, was directed jointly by Shri B. B. Lai and Shri B. K. Thapar, assistance being received, this year, amongst others, from Shri J. S. Nigam and Shri N. C. Ghosh. Besides imparting field-training to the students of the School of Archaeology, this season's work had four principal objectives to realize: (i)to further determine the defences on the western side of the Lower City (KLB-2); (ii) to obtain in this very mound cross-sections connecting the fortification on the one hand and the first north-south streets, each on the eastern and western sides; (iii) to uncover the house-plans of the successive structural phases in a selected area of this mound; and (iv) to determine in as many cases as possible the extent of the various Harappan platforms on the citadel-mound (KLB-1). For the first objective, which essentially was a sequel to last year's inconclusive evidence, more trenches were laid out along the western

periphery of the city-mound (KLB-2). For the second objective, fresh trenches were sunk starting from the inner faces of the exposed Harappan fortification-wall in KLB-2 and leading up to the first streets from both eastern and western directions. For the third objective, deep digging was resumed in a block of houses located about the middle of the mound KLB-2 and adjoined by two north-south streets and an east-west connecting lane. For the fourth objective, fresh trenches were laid out in the southern sector of the mound KLB-1, to fully expose on the western side the largest and east-west oriented Harappan platform and to lay bare other Harappan platforms and the passages in between them.

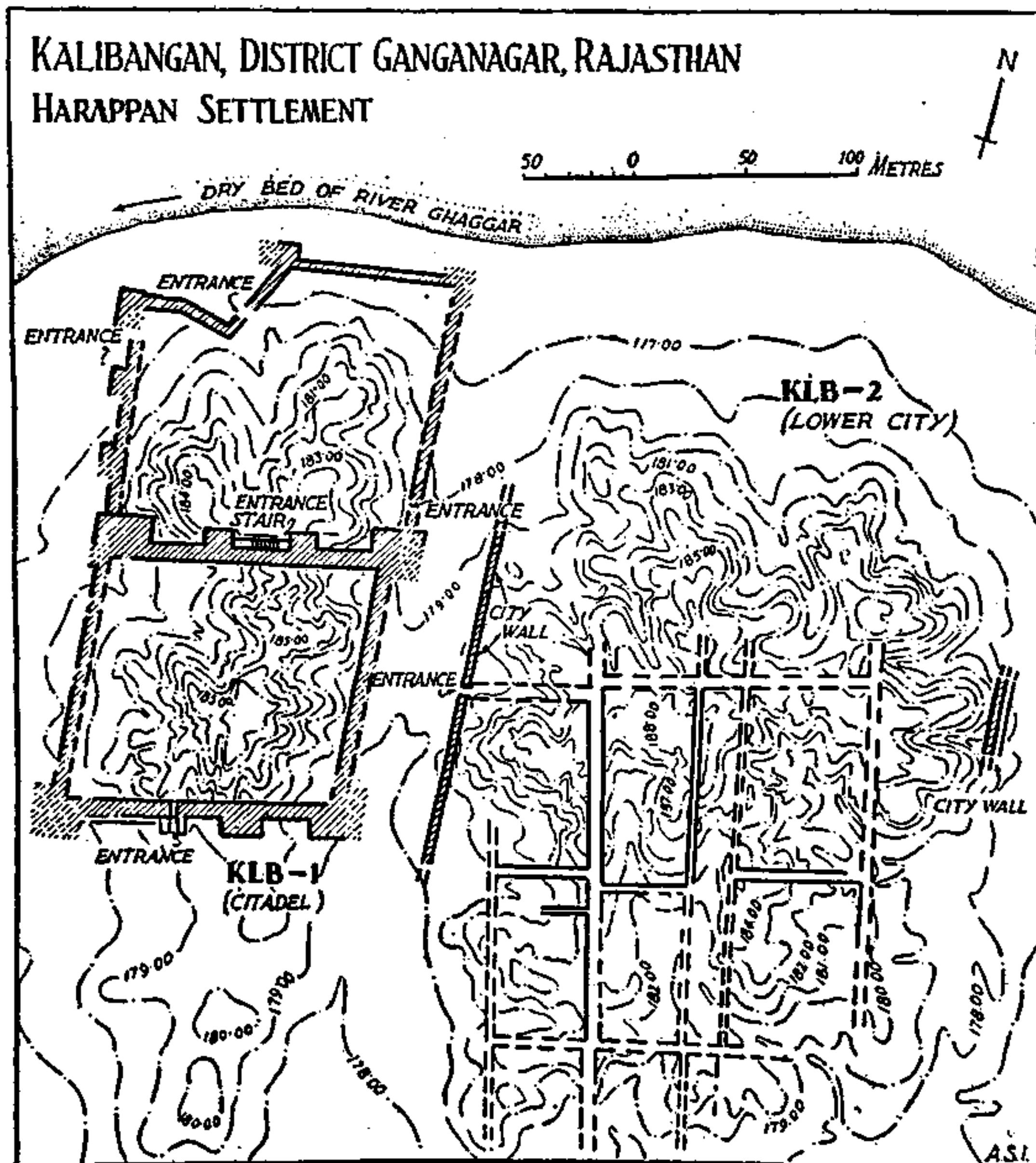


FIG. 7.

This year's excavation removed all previous doubts and fully confirmed the presence of the Harappan fortification wall (fig. 7) on the western periphery of the Lower City (KLB-2). The fortification wall (pl. XIX) was exposed to a length of over 150 m. with a width varying between 3 m. and 3.9 m. The maximum available mud-brick courses were fifteen. Two sizes of bricks, viz. 40x20x10 cm. and 30x15x71/2 cm., were found to have been used. It was discovered that in the northern part the city wall, had been built in a box-pattern, with mud-filling inside. A gateway (pl. XX A) about the middle of the fortification wall on this side led to an east-west street. The width of the gateway is 3.7 m. A room, measuring 2.8x2 m. and situated on the interior of the southern flank of the gateway, seems to have been a guard-room (pl. XX B).

In the city-mound (KLB-2), two further sets of trenches were laid to find out the relationship of the 'city wall' with the houses and streets: one starting from the inner face of the segment of the western 'city wall', exposed last year, and leading up to the first north-south street on the western side, and another starting from the inner face of the eastern 'city wall' and leading up to the first north-south street on the eastern side. Though in the westernmost part of the former cutting the lowest level revealed the presence of a few pre-Harappan structures and pottery attesting to the extension of the pre-Harappan habitation under the limits of the Harappan city, the adjoining square on the east in this very series had no sign of any pre-Harappan habitation and the settlement began with the Harappan structures and repertoire. In this stretch, nine successive structural phases of the Harappans were encountered, each associated with a corresponding road-level (pl. XVIII). A drain, lined with baked-bricks and discharging into a soakage-jar placed below the working level of the road, was found in association with a house having baked-brick revetment (pl. XVII B). In the area excavated on the eastern side also, nine successive building phases were discovered. In both the areas, it was revealed that the 'city wall' began with the earliest Harappan settlement. While the reasons for the apparent inconsistency between the alignments of the defences and the streets still remain to be fully ascertained—perhaps there was a change in the alignment of the streets in the course of time—it was at the same time observed that the house-walls nearer the 'city walls' on the eastern and western sides faithfully followed the alignments of the latter and the house-walls nearer the streets those of the streets themselves. Thus, local adjustments also seem to have played a part in the general lay-out. The matter, indeed, requires further investigation.

Area-digging was resumed near the central part of the mound KLB-2 to obtain house-plans. In this area also nine successive building levels were encountered. As already stated earlier, the house-block had a street each on the eastern and western sides and a lane on the southern side connecting the two streets. The excavation revealed that the block had more houses than one. Entrance to one of the houses was found from the lane. The entrance opened into a corridor which in turn led to the courtyard (pl. XVI). There was no evidence of any entrance from the corridor (pl. XVII A) into the side rooms. The rooms varied in dimensions, the biggest and smallest being 3 x 2 m. and 2x1 m. respectively. The rooms were interconnected through doorways. The width of the door varied from 70 cm. to 75 cm. A single socket on the sill of the entrance to a room suggests that probably single-leaf doors were used. In one of the rooms, copper celts, spear-heads, arrow-heads, and a steatite seal were recovered from various floor-levels. In a few rooms were also met with circular or oblong mud-lined enclosures within which stood terracotta cylindrical objects associated with ash and

charcoal pieces. The area of the courtyard was increased or reduced at different levels. In all the phases, a greenish deposit was found in the courtyard. The green tinge may be due to the use of dung-plaster on the successive floors of the courtyard.

The excavation in the southern sector of the citadel-mound (KLB-1) was resumed to further expose the Harappan mud-brick platforms. In all, four Harappan platforms came to light by the close of the dig. All these were oriented along the cardinal directions. While in the case of the largest, the longer axis was east-west, in the case of the others it was north-south. There were regular passages in between the platforms (pl. XVA). Further work is needed to determine the extent of these platforms. Five baked-brick drains of successive Harappan phases were exposed. Two of these were covered with single bricks (pl. XV B). The other three drains were found uncovered, but with a brick-paved bottom (pls. XIII and XIV).

In the course of digging below the western end of the east-west-oriented Harappan platform, a pre-Harappan baked-brick drain (pl. XXI A) with two courses was found. The size of the bricks used in this drain was typically pre-Harappan, namely 30x20x10 cm. It may be recalled that the possibility of the use of baked-bricks by the pre-Harappans at Kalibangan had already been noted earlier (*1962-63,* p. 20), with the occurrence of fragments of such bricks in the concerned strata. The present discovery duly confirms the earlier inference.

In order to trace the course and fluctuations of the now-dry Ghaggar, four borings were made in the bed of the river, starting from the northern fringe of KLB-2 and spacing the borings at intervals of 300 m. (pl. XXI B). Soil-samples were collected from various levels up to a depth of 40 m. from the surface. The samples are under expert examination. In this work collaboration was received from Shri K.R. Karanth of the Geological Survey of India and from Mr. R. L. Raikes, a noted hydrologist from Rome.

UTTAR PRADESH

51. EXPLORATION IN DISTRICT BASTI.—While exploring along the Ami River within the protected limits of the site of Belhar Jungle, about 11 km. from Nandaur village in Tahsil Bansi, Shri Ballabh Saran of the Survey discovered sherds of the Painted Grey, plain grey, Northern Black Polished and painted red wares. A large number of animal bones were also found.

52. EXCAVATION AT ATRANJIKHERA, DISTRICT ETAH.—Excavation at Atranjikhera were resumed by Shri R. C. Gaur of the Department of History, Aligarh Muslim University, under the general supervision of Professor Nurul Hasan, with the following objectives: (i) to determine the extent of the protohistoric remains; (ii) to ascertain whether there was any continuity or overlap between the Painted Grey Ware Phase and the Northern Black Polished Ware Phase; and (iii) to investigate deposits of the Gupta and medieval periods.

A number of exploratory trenches, sunk in different parts of the mound, disclosed the following results: (i) habitation in the protohistoric times was confined only to the eastern part of the mound, although sporadic sherds of Ochre-coloured pottery were collected from the south-eastern and north-western periphery of the mound; (n) occupation in the rest of the mound commenced with the earliest phase of the N.B.P. Ware, which was characterized by the absence of structural remains; (iii) occupational area of the Sunga-Kushan period was more or less the same as that of the N.B.P. Ware Phase;

(iv) habitational strata of the Gupta period were absent in spite of the occurrence of sporadic finds of that age; and (v) deposits of the medieval period, divisible into pre-and post-glazed ware phases, were widespread, particularly in ARJ-1. The post-glazed ware Phase could be dated to thirteenth-fourteenth century A.D.

The general characteristics of the pottery throughout the cultural periods remained the same as reported earlier with a few new shapes. In the pre-structural N.B.P. Ware Phase, a dish-on-stand (?) in grey ware, with a hollowed stem and corrugated high base and bearing stamped leaf-design and crude painting, was significant. Among the minor finds of this phase mention may be made of copper antimony rod, bone objects; and a dagger, knife, and hoe of iron.

Small finds of Period V (Sunga period) included a mould showing a lion-head and a *dampati* plaque, in terracotta besides some iron objects. A partly exposed Jaina temple (?) complex, comprising a central cell and adjoining parts, assignable to thepre-glazed ware phase of the medieval times, was noteworthy. A significant find herein was a that of large image of Suparsvanatha with a canopy of seven-hooded serpent. Handmade bearded head of unbaked clay, and terracotta objects represented by a bird, a boat, a toy-cart, a bench or cot with pin-holes and a tripod were significant finds of this Period.

53. EXPLORATION IN DISTRICTS FATEHPUR AND KANPUR.—Shri R. C. Singh of the Archaeological Department, Uttar Pradesh, conducted an exploration in Districts Fatehpur and Kanpur and discovered a number of sites and sculptures.

In District Fatehpur, sherds of the Painted Grey and Northern Black Polished Wares were picked up from a large mound at village Galath. Coarse and slipped red wares were also found at Jafarabad, besides old bricks. At Naraini, Pur and Saton, black-polished ware was found along with coarse and slipped red ware.

In District Kanpur, he located ancient mounds yielding Northern Black Polished Ware, black polished and slipped red wares at Bihupur and Padri Lalpur. A site called Jahagirabad yielded Painted Grey, Northern Black Polished, plain grey, black polished and coarse red wares. Medieval Brahmanical sculptures were found at Paras and Rahnas. The latter place is referred to as Rahanatha in a pedestal-record of *Samvat* 1320 (A.D. 1263-64) discovered locally.

54. EXCAVATION AT MASAON, DISTRICT GHAZIPUR.—Shri R. B. Narain of the Sanskrit University, Varanasi, resumed excavation at Masaon. This season's work had two objectives to realize: (i) to examine further the earliest level, exposed during the previous year; and (ii) to lay bare more area containing structural remains and town-plan of the Kushan period.

A cutting, 10x10 m., dug to the natural soil, revealed four periods of occupation, of which Period I consisted of two Phases, A and B. The former representing a pre-Northern Black Polished Ware deposit was distinguished by black-slipped ware, grey ware of fine, medium and coarse varieties, coarse as well as slipped red ware, and few sherds of black-and-red ware. Other finds of the Phase included bone points, balls, discs, bangles, beads and gamesmen of terracotta, copper objects and microlithic flakes. The presence of nearly 2 to 5 cm. thick deposit of sand in the lowest level points to an evidence of flood that might have occurred in this Phase.

Phase B was characterized by the occurrence of Northern Black Polished Ware, black-slipped ware, grey and red wares, the black-and-red ware being extremely rare. Associated finds included copper punch-marked coins, copper objects, human and animal figurines, discs, balls, beads and bangles of terracotta, microlithic flakes, bone points, and a circular glass object. Three floor-levels of baked-bricks and ring-wells were also unearthed.

Period II, corresponding to the Sunga period, was represented by the Northern Black Polished, black-slipped, red and grey wares. The pottery, though similar to the previous Period, was somewhat degenerate in form.

Period III, belonging to the Kushan period, showed further details of structures, already exposed during the last season. The floorings having a regular setting of bricks with a marginal border of bricks-on-edge were found in all the quadrants opened this year. The nature of the structural remains, however, could not be ascertained. The excavation revealed that the road perhaps had a turning towards the west. Associated finds included coins, rods and rings of copper, terracotta human and animal figurines in typical Kushan style, gamesmen, seals and sealings.

Period IV (Gupta period) yielded poor structural remains, mostly rebuilt with the brick-bats of the earlier structures. It was not possible to determine the details and plans of the structures. Other finds of the Period included silver and copper coins, terracotta human and animal figurines, moulds, beads, gamesmen, seals and sealings. An important object found from this deposit was a copper mirror having a handle and a hook.

Most probably the site was abandoned after Period IV.

55. EXPLORATION IN DISTRICT KANPUR.—In continuation of his previous year's work, Shri L. M. Wahal of the Northern Circle of the Survey discovered Northern Black Polished Ware at Karchalipur and Painted Grey Ware with Northern Black Polished Ware at Musanagar. Several loose sculptures of Vishnu, Hara-Gauri, Mahishasuramardini, Surya and Ganesa, assignable to the Late Gupta and medieval periods, were noticed at Behta, Bhirhar, Khera, Kursenda, Lakhan, Musanagar and Pahewa in Tahsil Ghatampur. Remains of a carved brick temple at Chunnar in the same Tahsil were also reported.

56. EXPLORATION IN DISTRICT LUCKNOW.—Shri S. B. Singh of the Northern Circle of the Survey, continuing his earlier work, found Painted Grey Ware Northern Black Polished and black-and-red wares at Banthra. From the mounds at Kalli Najhagaman Pachchim and Tikri were recovered sherds of Northern Black Polished Ware, while medieval Brahmanical sculptures and terracotta heads were discovered at Godha Mati and Natkur.

57. EXPLORATION IN DISTRICT MEERUT.—Shri. R. P. Sharma of the North western Circle of the Survey discovered Painted Grey Ware at Kaila Kunehra, Nagla Firoz Mohanpur, and Suthari, in Tahsil Ghaziabad; at Kalina and Muhammad pur- Dhumi in Tahsil Meerut and at Bamnauli in Tahsil Baghpat.

58. EXPLORATION IN DISTRICT SAHARANPUR.—In course of exploration, Shri Shankar Nath of the North-western Circle of the Survey, discovered sites yielding late Harappan and Ochre-coloured pottery at Alipura, Bahera Khurd, Bhabri, Bhedeki (Mustahkaur) Dhamola, Haribas, Kolkikalan, Kota, Mathana, Chunehti Shekh,

Chouradeo, Nalhera Bakal and Subhri Khwaja in Tahsil Saharanpur. The sites yielding sherds of Painted Grey Ware, in addition to the late Harappan and Ochre-coloured-pottery were found at the villages Chouradeo and Kolki Kalalan.

At Abha, Dudli Bukhara (Mustahkan), Kalalhatti, Mahipura, Papreki, Pathori, Rasulpur, Rangel and Sabdalpur in the same Tahsil only Ochre-coloured Pottery was found and only the Painted Grey Ware at Ahir, Asawala, Budha Khera and Kurali and Asawala.

59. EXCAVATION AT SARAI-MOHANA, DISTRICT VARANASI.— The Department of Ancient Indian History, Culture and Archaeology. Banaras Hindu University, under Professor A.K. Narain, assisted by Sarvashri T.N. Roy and B.P. Singh, carried out a small-scale excavation at Sarai-Mohana, for training post-graduate students in field archaeology. The site is located on the left bank of the river Varuna, about 0.33 km. from Rajghat. Covering an area of approximately 1 square km., it extends more towards north-north-east from the confluence of the Ganga and Varuna and appears to bean extension of the Rajghat mound. The excavation was undertaken with a view to finding out the cultural sequence in this part of the mound and to correlate the same with Rajghat.

A cutting, measuring 15x10 m., was made at the highest available point in the north-south alignment. " The excavation revealed two occupational periods, with a break in between, indicating the desertion and subsequent reoccupation of the site.

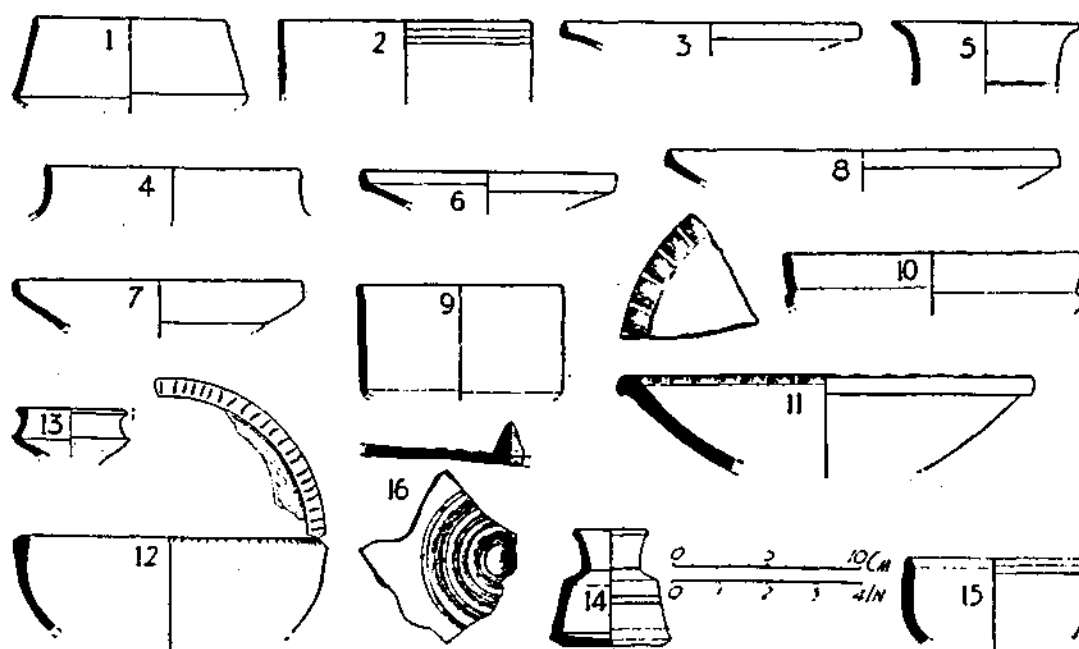


FIG. 8.

Period I revealed three Sub-periods, IA, IB and IC. The cultural equipment, including the ceramic industry, of the Sub-periods was similar to that from Prahladpur and Rajghat. Sub-period IA yielded black-slipped ware with certain new types (fig. 8), black-and-red ware, both plain and painted, -and coarse and slipped red ware, besides a few pieces of grey ware. The black-slipped and red slipped wares of this Sub-period consisted of some types having parallels in Period II of Hastinapur. Certain shapes in red ware, viz. vases with carinated neck and basins with convex sides, were also akin to those in the red ware of Hastinapur II. Some sherds of the black-and-red ware were painted in white and occasionally in black on the interior. Other finds of this Sub-period included decorated terracotta discs, bone points, beads, pottery discs, both plain and perforated, a terracotta spindle whorl and a terracotta cone.

Sub-period IB witnessed an overall improvement in the cultural assemblage. The Northern Black Polished Ware, along with its painted variety, came into use for the first time. Certain new types in red ware, such as bowls with jncurved sides decorated on the rim-top with short incised vertical strokes, bowls with vertical featureless rim and a flat base, pedestalled bowls, lipped basins and a fragment of a footed base of vase with perforations were quite important. Some of their parallel already reported from Hastinapur III. A few painted and incised sherds bearing graffiti marks

were also found (pl. XXII). Other cultural equipment of the previous Sub-period, like terracotta discs, bone points, beads, spindle whorls and cones, continued to occur with many new additions. Terracotta human (pl. XXIII) and animal figurines were also noticed, besides copper and iron objects.

The distinctive feature of Sub-period IC was the emergence of the coarse grey ware. The red ware industry too revealed some new types which were absent from the preceding levels. The following shapes were observed: pear-shaped vase with] variants (analoguous to those in Hastinapur III), a *karahi* with applied loop handles] on either side, carinated *handi* with featureless rim, dishes with sagger base, and a shallow bowl with flat base. Black-and-red ware did not occur in this deposit. Structural activity was represented by a terracotta ring-well, partially excavated with three rings intact.

The occupation in Period II, roughly assignable to the late medieval times, was of a flimsy nature, being disturbed by pits. The ceramic industry, entirely different from that of Period I, was marked by the presence of only red ware. The shapes included knife-edged bowls and carinated cooking vessels. The material of the Period could be compared with that of the late levels of Period V at Hastinapur, Period VI at Rajghat and Period VI at Rupar. The structural remains were represented by a badly disturbed lime-mortar floor, two clay ovens, a sacrificial fire-place made of clay (?) and the remains of a few brick walls.

WEST BENGAL

60. EXCAVATION AT TULSIPUR, DISTRCT BANKURA.—A short excavation was carried out at the mound of Tulsipur below the confluence of the rivers Kasai and Kumari, jointly by Mrs. J. Birmingham of the Sydney University, Australia, and Shri S. K. Mukherjee ol the Eastern Circle of the Survey, in order to ascertain, in the first instance, the nature of the chalcolithic and early jron age cultures of the region,

and, secondly, to obtain a stratified sequence from the Late Stone Age through the neolithic period to the chalcolithic and early iron age cultures.

The excavation revealed three main phases, of which the first two showed a continuous development. The characteristics of each phase are as follows:

The earliest phase was represented by some floors and a pit, and gritty red-slipped, black-and-red and micaceous wares.

In the next phase, black-polished and grey-polished pottery, a few chalcolithic gritty red-slipped wares and some black-and-red sherds were found. Iron was found in throughout both the phases. Black-and-red ware types show some similarity with Birbhum and Burdwan pottery.

The last phase was characterized by a bright red ware occurring in recent sand which covered much of the site to a depth of about 50 cm.

61. EXPLORATION IN DISTRICT MIDNAPUR.—The Directorate of Archaeology, West Bengal, discovered a pebble tool and a few microlithic flakes of green jasper from the loamy deposit overlying the upper gravel of the Dulung, near Gidni. The lower gravel overlies, and is overlain by, clay deposits.

62. EXPLORATION IN DISTRICT PURULIA.— The Directorate of Archaeology, West Bengal, discoverd handaxes, ovates, cleavers and other tools of Acheulian assemblage from the cliff-sections of the streams Hanumati, Amruhasa, Naugasai and Liki Saira (pl. XXIV). The partly cemented and implementiferous gravel overlies the granitic bed-rock. On the basis of typology, patination and state of preservation the industry may be divided into an earlier and a later phase. Tools of the Middle Stone Age and Late Stone Age were also found in the same region. Middle Stone Age scrapers, blades, points, cores and flakes (pl. XXV A) were picked up from Matha Forest, Dadha, Namsol and Sindurpur together with the Late Stone Age micro lithic blades, crested-ridge blades, lunates, scrapers, points, borers, burins and fluted cores (pl. XXV B).

63. EXPLORATION IN DISTRICT 24-PARGANAS.—Resuming previous year's work, the Asutosh Museum of Indian Art, University of Calcutta, conducted an exploratory survey at Chandraketugarh, under Shri C. R. Roychoudhury, assisted by the technical staff. The operations were mainly confined to the fortified area of Chandraketugarh.

Surface-exploration revealed several isolated low mounds composed of brick debris indicating the existence of brick structures. Antiquities like pottery, terracottas, coins, beads, tile-fragments and decomposed wood and bamboos were found in the sections of the rampart, accidentally cut by the local people. Three phases of the temple-complex, unearthed in excavations during previous seasons at Khana-Mihirer-Dhipi, were noticed. Remains of the plinth of a huge brick-built temple (15.75 X 29.58 m.) with three distinct phases, showing additions and alterations were brought to light. The plan showed an elaboration of the north Indian order of temples. A tentative date *of circa* seventh-eighth century A. D. is postulated for the earliest phase.

n. EPIGRAPHY

SANSKRITIC AND DRAVIDIC INSCRIPTIONS[1]

ANDHRA PRADESH

1. INSCRIPTION, DIGUVA ABBAVARAM, DISTRICT CUDDAPAH.—An inscription in Telugu, on a slab in the Abbesvara temple and dated Saka 1154 (A.D. 1232), records the grant of the village of Gangasamudram to god Abbesvara of Abbavaram by Rayidevamaharaja, the Kalukadapura chief ruling from his capital Andapuram in Marujavadi.

2. INSCRIPTION, DIGUVA ABBAVARAM, DISTRICT CUDDAPAH.—An inscription in Kannada, on a Nandi-pillar belonging to the fourteenth century A.D., records the tax-free grant of the village Abbayura, renamed as Triyambakapura after Triyambakadeva-raya-odeya, situated in Vangimaduvu in Marujavadi, by Hariyannodeya, son of Vira Virupannodeya, to god Triyambakadeva for food offerings.

3. COPPER-PLATE CHARTER, PEDACHEPALLI, DISTRICT CUDDAPAH.—The charter belongs to the Renati King Srikantha-Chola. The genealogy furnished by it is practically the same as that found in the Madras Museum plates of this very king, though the name of Divakara, the father of the king, is omitted in the present record.'

4. INSCRIPTION, PEDDIVIDU, DISTRICT CUDDAPAH.—An inscription on a slab,, in Telugu characters and language of the tenth century A.D., records the death of the heroes Vallavula Sarabana, Chattana, son of Salki Narayana, etc. It also mentions Sri Bira Cholagemgge.

5. INSCRIPTION, VANGIMALLA (DIGUVA RACHAPALLE), DISTRICT CUDDAPAH.— An inscription in Telugu, dated Saka 1367 (A.D. 1445), in the reign of Devarayamaharaya, son of Vijayaraya, records the construction of a *ranga-mandapa* in front of the shrine of Arimambika by Tirumalesvara-nayaka, son of Bhairpa-nayaka, who bears among others the epithet *Kalikatapuravaradhisvara.*

6. COPPER-PLATE INSCRIPTION, PINAPALLI, DISTRICT EAST GODAVARI.—An inscription in Sanskrit language and Telugu characters, belonging to Allada Vema, the Reddi chief of Rajahmundry and dated Saka 1346 (A.D. 1424), records the grant of the village Pinapanala by the chief to his minister Srigiri who underwent the ordeal *agni-divyam* to prove that he was not guilty of *svami-droha.* The genealogy of the Reddi chiefs is also given.

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1 Information from: 3, the Director of Archaeology and Museums, Andhra Pradesh; 14, 15, 36 and 37, Professor K. D. Bajpai, University of Saugar; 20, 22 and 26, the Director of Archaeology, Madras State ; 31-33, the Director of Archaeology, Mysore State; 34 and 35, the Superintending Archaeologist, Western Circle of the Survey (discovered by Shri N. M. Ganam of that Circle); and the rest, the Chief Epigraphist of the Survey.

7. IKSHVAKU INSCRIPTION, NAGARJUNAKONDA, DISTRICT GUNTUR.—A fragmentary Prakrit inscription in Brahmi characters of the third century A.D., engraved on a broken pillar used as a step in a well in Site No. 57 of Sector N III belongs to the twenty-fourth regnal year of the Ikshvaku ruler Vira-Purisadata who is described therein as *Siripavatadhipati* and *Mathariputa.* The inscription seems to record the installation of an image *(patima).*

GUJARAT

8. ABHIRA INSCRIPTION, KUTCH MUSEUM, BHUJ.—This inscription in Gupta Brahmi characters dated Saka 254 (A.D. 332), refers to an Abhira king named Isvaradeva. It has contributed new evidence for the history of the Abhiras and is the earliest record mentioning the Saka era by name.

9. KSHATRAPA INSCRIPTION, KUTCH MUSEUM, BHUJ.—This inscription, dated Saka 11 (A.D. 89), belongs to the time of Chashtana, the founder of the Kshatrapa dynasty, and takes the foundation of the dynasty back by forty-one years.

MADHYA PRADESH

10. SATI INSCRIPTIONS, HINDORIA DISTRICT DAMOH.—-An inscription in local dialect, dated Vikrama 1713 (A.D. 1656) refers itself to the reign of the Mughal emperor Shah Jahan and records the performance of *sati* by the wife of the local chief Thakur Juhar Sadar Mahadela. Some other *sati* inscriptions, also in local dialect, discovered here belong to the reign of Aurangzeb and mention a local chief named Amar Singh. While two of these are dated Vikrama 1745 (A.D. 1688), the other two are dated Vikrama 1756 (A.D. 1699) and 1773 (A.D. 1716) respectively.

An inscription in Sanskrit from the same village, dated Vikrama 1872 (A. D. 1815) and Saka 1737 (A.D. 1815), records the performance of *sati* by the wife of one Barayana, who was the son of a ruler named Mahadela Latkana.

11. SATI INSCRIPTION, ROND, DISTRICT DAMOH.—This inscription in Sanskrit mixed with local dialect, dated Vikrama 1383 (A.D.1326) refers itself to the reign of Patishahi Mahamuda (Muhammad-bin-Tughluq). It mention ones Narasimgha born in the Pratihara family, and records the performance of *sati* by his two wives.

12. PARIHARA INSCRIPTION, SINGORGADH, DISTRICT DAMOH.-—Dated Vikrama 1357 (A.D. 1300) this inscription in Sanskrit mixed with local dialect refers itself to the reign of Vaghadeva and mentions Gajasimha-durga.

13. SATI INSCRIPTIONS THARRAKA DISTRICT DAMOH.—TWO inscriptions in local dialect dated Vikrama 1570 (A.D. 1513) and 1577 (A.D. 1520) respectively belong to the reign of Raja Amanadasa who may be identified with the famous Gond king Samgramasahi. The earlier of these mentions a *mahasati* Chamda and refers to the king's rule over Srigadha-Giri-vishama-durga.

A third inscription also in local dialect, from the same place refers itself to the reign of another Gond ruler Chhatrasahi. Dated Vikrama 1737 (A. D. 1680) it mentions Thakura Vasamtarai and seems to record the performance of *sati* by a lady named Januki.

14. SEALING, TRIPURI, DISTRICT JABALPUR.— A clay sealing, found in the excavation at Tripuri, bears the legend *Maharaja Chandrabodhi* in characters of the third century A. D.

15. SEALING, VIDISHA, DISTRICT VIDISHA.— A clay sealing with the legend *Varahadattasya* in Gupta characters was discovered.

MADRAS

16. INSCRIPTION, KOTTUR (MADRAS CITY).— An inscription on a slab, found near Elliamman temple, registers the gifts made by weavers and merchants, the inhabitants of Mettupalaiyam, in the year of Raudri.

17. INSCRIPTION, SALUVANKUPPAM, DISTRICT CHINGLEPUT.— An inscription on the floor of the Atiranachanda-mandapa records the gift of sheep for a perpetual lamp in the temple of Atiranachandesvara in Thiruvizhichchil in Amurnadu, a sub-division of Amur Kottam. It belongs to the reign of Rajaraja I.

18. THREE INSCRIPTIONS, THIRUVORRIYUR, DISTRICT CHINGLEPUT.—The three epigraphs are on a pillar supporting Nandi in the Adipurisvara temple. One of them, in characters of the ninth-tenth century A.D. and belonging to the reign of Sharjaraiyar, records the gift of one *ilavilakku* and ninety sheep for a perpetual lamp in the temple of Thiruvorriyur-Mahadeva by one Konda-mahadevi, a queen of Sharjaraiyar and the daughter of Saktivarma Kaduvettipperumanadigal. The second, dated in the third regnal year of Ko-Rajakesarivarman, refers to the provisions for offering, etc. The third records the gift of ninety sheep for a perpetual lamp in the Thiruvorriyur-Mahadeva temple by Pirantakan Brahmasri Rajan of Alaiyur, a *brahmadeya* in Vipillaru in the sub-division of Vadakari Poggainu in Cholanadu, during the fortieth regnal year of Ko-Parakesarivarman, Parantaka I.

19. CHERA INSCRIPTION, ERODE, DISTRICT COIMBATORE.—This inscription (pl. XXVI), in Tamil language and characters of about the tenth century A. D.,IS engraved on a loose slab. It seems to record the construction of a tank, called *Tali-eri,* and the creation of an endowment of money for its maintenance by Vanji-Vel Tali *alias* Tennavan Peraraiyan. It is dated in the 170th year, obviously of the Kollam era, in the reign of Ko-Iravi-Kodai.

20. INSCRIPTION, MURUNGAITTOLUVU, DISTRICT COIMBATORE.—This Tamil inscription, in characters of about the thirteenth century A. D., is dated in the sixth regnal year of Sundarapandya. It records the construction of a shrine, installation of the image of god Chandesvara and endowment of a lamp by Alajasundara-nambi *alias* Uyyavan (dan) -bhattan Chendan, a *devakanmi* of the temple in Peruntoluvu in Pundurainadu.

21. INSCRIPTION, VELLODU, DISTRICT COIMBATORE.— An inscription, in Tamil characters of about the thirteenth century A. D., is engraved on the north and east walls of the central shrine in Sarvalingamurti temple. It belongs to the reign of Tribhuvanachakravarti Konerimel-kondan and records a grant of privileges, such as blowing the

double conch, beating the drum, wearing the sandals and whitewashing their respective houses on auspicious as well as inauspicious occasions, to the Kanmalar in Kangeya-nadu and Pundurainadu.

22. INSCRIPTION, CHINNAKKOUNDANPATTI (NAVALI), DISTRICT DHARMAPURI.—Found on a hero-stone in the field adjoining the road, the inscription, in Kannada characters of the ninth century A. D., seems to record the construction of a tank in memory of a hero in the reign of Vira Nolimba.

23. NOLAMBA INSCRIPTIONS, DISTRICT DHARMAPURI.— A Tamil inscription, in characters of about the ninth century A.D.., engraved on the inside surface of an old oil-mill at Kottamedu, states that the oil-mill was donated by Iraiyaman, when Viyala-chekara-Nulamban was ruling. Another inscription[1] on a hero-stone at Navalai, in Kannada characters (pl. XXVII A) and language of the tenth century A. D. and dated in the reign of Vira-Nolamba, states that while the king was ruling from Navilur, Punnaga died fighting with thieves and that his son-in-law set up the stone. Tagadur is also referred to in this record.

24. GANGA INSCRIPTIONS, NAVALAI, DISTRICT DHARMAPURI[2].—One Tamil inscrip tion from Navalai, in Vatteluttu characters of about the eighth century A.D. on a hero-stone is dated in the third regnal year of Sivamaravarman. It records that while Kanda-Vannadiyaraiyar was ruling over Puramalainadu, (Ke)tti-Natti died in the course of the attack on Kudal by Vana-peruman. Another hero-stone inscription, also in Tamil language and in Vatteluttu characters of the ninth century A.D., states that in the seventeenth year in the reign apparently of a Ganga king whose name is lost, a certain Govindaraiyan attacked Vadavellur with his cavalry and that Pungudi .Vadugan died after killing the horses.

25. Two INSCRIPTIONS, PAPPAMPADI, DISTRICT DHARMAPURI[3].—One Tamil inscrip tion on a hero-stone at Pappampadi, a hamlet of Irulappatti, is engraved in Tamil characters influenced by Vatteluttu of about the fifth century A. D. The stone was set up in memory of Vinnapperenadi, a subordinate of Vanaparuma-araisaru and also in memory of a servant of the former. The other inscription, engraved in Tamil charac-ters of a slightly later date, belongs to the reign of Ko-visaiya Vinnavarman. The stone was setup in memory of Vana-[di] yaraisar who died in a skirmish. A Ganga-raisar is mentioned in this connection.

26. INSCRIPTIONS, PERUMPULIVAKKAM, DISTRICT NORTH ARCOT.—Eleven inscrip tions are noticed in the Agastisvara temple. One of them, on a pillar of the front *mandapa,* is dated in the third regnal year of Vairameghavarman. It records the gift of twenty *kalanju* of gold by one Vijayanallulankandan for a perpetual lamp in the temple. The villagers are noted as agreeing to the maintenance of the endowment by supplying one *uri* of oil daily. The second inscription, on a slab built into the shrine of the temple, refers to a gift entrusted with the *mar* of Perumpulivakkam to perform *Thiruppalikottu*

1 Also reported by the Director of Archaeology, Madras State.
2AIso reported by the Director of Archaeology, Madras State.

3Also reported by the Director of Archaeology, Madras State.

to the Piranar of Agastisvaram. The third inscription, dated in the thirtieth regnal year of Rajendra, is on a pillar of the *ardha-mandapa*. It refers to the gift of six *nali* of rice per day to Thiru Agastisvaramudaiyar of Perumpulippakkam by Malaiyan Kuntavai *alias* Sembiyan Madevi, the chief queen of Rajendra I. The remaining eight inscriptions are fragmentary.

27. INSCRIPTION, TIRUCHENGODE, DISTRICT SALEM.—A Tamil inscription, in characters of about the tenth century A. D. and dated in the fifth year of the reign of Rajakesarivarman, records the undertaking of' *Pannirandunattup-perumakkal* in respect of sixteen *kalanju* of gold endowed for supply of oil on every Saturday to the temple at the hill by Puliyan-Kadamban of Vellur in Vengalanadu.

MAHARASHTRA

28. PAUNI GRANT OF VAKATAKA PRAVARASENA II DISTRICT BHANDARA[1].—This copper-plate grant in Sanskrit language and box-headed characters, recording the perpetual grant of 50 *nivartanas* of land to one Durgarya, belongs to the thirty-second regnal year of Pravarasena II. Prior to the discovery of the present charter, the latest date for Pravarasena II's reign had been provided by his Pandhurna grant issued in the twenty-ninth year of his reign.

MYSORE

29. CHALUKYA INSCRIPTION, KALKUNDI, DISTRICT DHARWAR.—An undated and worn-out Kannada inscription from Kalkundi belongs to the reign of Jagadekamalla II (A.D. 1138-55) and refers to the Goa Kadamba rulers Jayakesin II and his son Vijayaditya and Sivachitta-Permadi. The last of these is stated in the epigraph to be administering, as the emperor's feudatory, the divisions of Palasige-12000, Konkana-900 and Kavada-dvipa-one and a quarter lakhs.

30. CHALUKYA INSCRIPTION, TAMBURU, DISTRICT DHARWAR.—This Kannada inscription, belonging to the reign of Tribhuvanamalla (Vikramaditya VI) and dated Saka 1002 (A. D. 1080), refers to the Goa Kadamba feudatory Guhalladeva as adminis tering Palasige-12000, Konkana-900 and Kavadi-dvipa-one and a quarter lakhs. Jayakesi-dandanayaka of Tammiyuru,his *kiriyabbe* (step-mother or mother's younger sister) Chattikabbe and wife Dekiyabbe also figure in the epigraph which records a number of grants of land, money and utensils by a number of donors belonging to the village of Tammiyuru to god Uttaresvara. Two more supplementary grants engraved on the same slab refer to Chattayya of the Kadamba family as ruling over that territory.

31. TWO INSCRIPTIONS, HALEBID, DISTRICT HASSAN.—Both the inscriptions are on hero-stones and belong to the reign of the Hoysala king Viraballala.

32. INSCRIPTION, KONDAVAGILU, DISTRICT HASSAN.—The inscription mentions the construction of a temple and is dated in the thirteenth century A. D.

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1 Also reported by the Director of Archives and Archaeology, Maharashtra State.

33. INSCRIPTION, ARASINAKERE, DISTRICT MYSORE.—The inscription, on a hero-stone, belongs to the thirteenth century A.D. and describes the valour of a hero named Dummagowda.

RAJASTHAN

34. INSCRIPTION, BALDWA, DISTRICT NAGAUR.—The inscription, in Sanskrit, and local dialect, is dated Samvat 1424 (A. D. 1367). Belonging to the reign of Raja Peroj (Firuz Tughluq), it records the erection of a stone pillar by Mehta Asal Bardwal.

35. INSCRIPTION, DIDWANA, DISTRICT NAGAUR.—The inscription, in Sanskrit, is engraved on a pillar in the Qile-ki-Masjid. Dated Samvat 1520 (A. D. 1462), it refers to the reign of Mujahid Khan (Khanzada of Nagaur).

UTTAR PRADESH

36. SEALING, KAUSAMBI, DISTRICT ALLAHABAD.—The clay sealing bears the legend *Sathamitasa* in Brahmi characters of the first century A.D.

37. SEALING, MATHURA, DISTRICT MATHURA.—The clay sealing contains the legend *Yavanikanam* in Brahmi characters of the second century A. D.

ARABIC AND PERSIAN INSCRIPTIONS[1]

ANDHRA PRADESH

1. MISCELLANEOUS INSCRIPTIONS, DISTRICT HYDERABAD.—A new epigraph, dated A.H. 1006 (A.D. 1597-98) and inscribed by the calligraphist Muhammad Salih, son of Shaikh Husain al-Bahrani, was found at Hyderabad. A number of epitaphs, belonging to persons of different walks of life who died between A.H. 1012 (A.D. 1604) and A.H. 1230 (A.D. 1815), were copied from the same place; these records mark the graves of Sultan Ali Ahmad (*d.* A.H. 1012=A. D. 1604), Muinu'd-Din Ahmad (A. H. 1013=A. D. 1604-05), Khwaja Muhammad Ali (A.H. 1014=A.D. 1606), Sayyid Salih (A.H. 1020=A.D. 1612), Mir Abdur-Rahim (A.H. 1074=A.D.1664), Mir Zainul Abidin (A.H. 1083=A.D.1672-73), Muhammad Jafar of Astarabad (A. H. 1O83=A. D. 1672), Haji Ali of Kashan (A. H. 1O85=A.D. 1674), Shah Mir (A.H. 1088=A.D. 1677), Shah Ibrahim (A.H. 1093=A.D. 1682) and others among the men of foreign origin, of Maulana Muhammad Husain of Kazarun (A.H. 1084=A.D. 1673) and Akhund Maulana Abdush-Shafi of Sabzwar (A. H. 1084= A. D. 1673) among the men of learning and accomplishment, of Malik Itimad Hakimul Mulk(A. H. 1069=A. D. 1659), Jafar Khan, son of Jamshid Khan (A.H. 1084=A.D.1673), Ali Nawaz Khan (A.H. 1136=A.D. 1724), Muhammad Naqi Khan (A.H. 1173=A.D. 1759), and his son Mirza Muhammad Husain Safshikan Khan Mujahid Jang (year lost) and great-grandson Mirza Abu Muhammad Safshikan Khan Bahadur (A.H. 1217=A.D. 1802), son of Mirza Ali Rida Safshikan Khan Bahadur Safshikan Jang, Abdul-Latif

1 Information from: 11, the Superintending Archaeologist, Western Circle of the Survey; and the rest, the Superintending Epigraphist, Arabic and Persian Inscriptions, of the Survey, Nagpur, who, assisted by Shri A. A. Kadiri, Shri S. A. Rahim and Shri M. F. Khan, Epigraphical Assistants, found, copied (or examined) and reported on about three hundred inscriptions, including those described above, during the year.

Khan (A.H. 1220=A.D. 1805-06), Mir Kamalud-Din Husain Kamgar Bahadur Jang (A.H. 1221=A.D. 1807) and Mir Ghulam Husain Khan Bahadur Bhrama Jang(A.H. 1230= A.D. 1815) among the men of high position, etc. An interesting eptiaph. records that Ali Aqa, son of Hamza Baig, was killed in A.H. 1066 (A.D. 1656) during the war between the kings, evidently referring to the Mughal attack.

GUJARAT

2. INSCRIPTIONS OF THE MUGHALS, DISTRICT AHMADABAD[1].—Two Mughal inscriptions from Ahmadabad, which were noticed in the past, were re-examined. One of them, recording the construction of a *sarai* by Azam Khan in A.H. 1047 (A.D. 1637-38) in the time of Shah Jahan, refers to the construction of a building, perhaps a part of the complex designated in the text as Qaisariyya, by which a *madrasa* was probably intended. The other epigraph, dated A.H. 1065 (A.D. 1654-55), also in the time of Shah Jahan, refers to the governorship of Sultan Murad Bakhsh and records the construction of a mosque in the premises of the mausoleum of Shah Ghiyathud-Din by Sayyid Jalil through the good offices of Khwaja Shahbaz; its metrical text was composed by one Hadi.

3. INSCRIPTIONS OF THE SULTANS OF GUJARAT, DISTRICT AHMADABAD.—All these inscriptions, with the possible exception of one, are from Ahmadabad. One of them records the construction of a mosque by Alam, son of Kabir, in A.H. 826 (A.D. 1423). Another inscription assigns the construction of a mosque to a lady named Barman (Bari Man) in A.H. 866 (A.D. 1461). In a third record, it is stated that a Jami mosque- was built by Khassa, son of Budh, entitled Dasturul-Mulk in A.H. 867 (A.D. 1463). A fourth epigraph records the erection of a Jami mosque by Sarang Sultani, entitled Malikush-Sharq Qiwamul-Mulk in A.H. 868 (A.D. 1464). A fifth record assigns the construction of a Jami mosque, in A.H. 874 (A.D. 1469), to Malik Baha, son of Nik Bakht Sultani, entitled Malikush-Sharq Imadul-Mulk, who held the post of *arid-i-mamalik.* A sixth epigraph, recording the construction of a mosque in A.H. 883 (A.D. 1478) by Bibi Daulat, gives the name of her husband as Khan-i-Azam Adil Khan. A seventh inscription, which is damaged and partly illegible, furnishes the information that a mosque, which was constructed in a particular *mahalla* (name illegible) by Amir (name and *alias* illegible) in A.H. 636 (A.D. 1238-39), was repaired after two hundred and odd years by one Shaikh Muhammad of Nahrwala. An eighth inscription, dated A.H. 910 (A.D. 1504-05), names Bibi Khunja as the owner of the mosque, meaning perhaps that it was constructed by her. A ninth inscription, recording the construction of a mosque by Shams Khan in A.H. 946 (A.D. 1539-40), was inscribed by Abdul-Hayy, son of Ali. A tenth inscription, the find-spot of which, is not known, but estampage of which was found in old records, is a record of Sultan Mahmud Shah III. It records the construction of a mosque, in A.H. 948 (A.D. 1541), by Abu Jiyu, son of Shaikh Jiyu, son of Husam, entitled Malikush-Sharq Nasirul-Mulk.

4. MISCELLANEOUS INSCRIPTIONS, DISTRICT AHMADABAD.—These are all from

[1] About one hundred inscriptions from Ahmadabad, already noticed or published, and the estampages. of which were lying in old collection, were re-examined; the readings in several cases were corrected in regard to dates and/or names.

Ahmadabad. An inscription from the tomb of the famous saint Shah Alam contains a poetical description of the locality named Rasulabad, in which the tomb is situated, and refers to the construction of the monument itself in A.H. 938 (A.D. 1531-32) by Abdul-Latif, son of Burhan, entitled Majlis-i-Sami Khan-i-Azam Taj Khan, who is mentioned as having been an ardent disciple of the saint; its metrical text was composed by the poet Yahya. Another inscription, from a mosque, dated A.H. 961 (A.D. 1553-54), quotes the full genealogy of its builder, Malik Shaikh Jalal, right up to the fourth caliph Hadrat Abu Bakr, which, apart from being an unusual feature, is quite interesting. A third epigraph, which is in verse, attributes the construction of a mosque to the celebrated saint Shaikh Hasan (of the Chishti order) in A.H. 973 (A.D. 1565-66); it was composed by Fida and inscribed by Dost Muhammad Sakhar. A fourth inscription, which has not been published or noticed so far, discloses a very interesting fact; bearing no date, but assignable on palaeographical grounds to about the fifteenth-sixteenth centuries, it furnishes the hitherto-unrecorded information that the grave on which it is inscribed, situated in the eastern corridor of the Badshah-ka-Hazira (or Kings' Tomb), belongs to one Bai (?) Nur Sabah. An undated inscription (about A.H, 1059=A.D. 1649), recording the construction of the entrance to a mosque by Qutb Khan, gives his epithet as Dhutani, that is to say, of Jhotana in north Gujarat, which is quite interesting. In another inscription, Sardar Khan, the famous Mughal official of Aurangzeb, is stated to have been responsible for the construction of a mosque situated near his tomb; the epigraphical tablet is now missing. The hitherto-unnoticed inscription on his tomb records A.H. 1124 (A.D. 1712-13) as the date of the death of a person who is described as 'the wonderful pearl of the ocean of bounty'. Another hitherto-unnoticed epigraph furnishes a very interesting piece of information that the railing enclosing the grave of the celebrated saint Shah Alam was got made by Sayyid Abdush-Shakur in A.H. 1183 (A. D. 1769-70).

JAMMU AND KASHMIR

5. INSCRIPTIONS OF THE MUGHALS, DISTRICT SRINAGAR.—A damaged inscription (pl. XXVIIB) of Jahangir, now at Srinagar but originally from Banihal Tunnel, records the completion of a masonry bridge constructed on the road to Kashmir by the orders of the emperor in his twentieth regnal year (A.H. 1034-35=A.D. 1625-26), under the superintendence of Banhil or Banihal (after whom the famous Banihal pass seems to have been named); it was inscribed by Abdul-Ghafur. Another inscription of Jahangir, lying in the garden of the museum at Srinagar, also records the construction of a bridge over the Kadal Bal on the road to Chashma (i-Shahi?); the writing being partly damaged, its date is lost.

6. INSCRIPTIONS OF THE SULTANS OF KASHMIR, DISTRICT SRINAGAR.—A previously-noticed inscription of the time of Zainul-Abidin from Zainalanka island on the Wular Lake was supposed to have been lost. It is, however, now in the local museum. It contains an eulogy on the royal building designated in the text as Zain-Dib (i.e. Zain-Dwipa or Zain Island), intended as a pleasure-resort of the king, the date being indicated by a chronogram yielding A.H. 840 (A.D. 1436-37). Another inscription, from Shaikh Madani's mosque at Srinagar, contains an undated record of the time of Zainul-Abidin referring to the construction of a mosque; this is perhaps to be taken as supplementary to the one mentioned below (p. 59). A third inscription, also from Srinagar, the

writing of which is badly damaged, refers to the reigning monarch (name lost) and records the date of the death of one Mihtar Malik which took place in A.H. 897 (A.D. 1491-92).

7. MISCELLANEOUS INSCRIPTIONS, DISTRICT SRINAGAR.—An inscription from Shaikh Madani's mosque assigns its construction, in A.H. 848 (A.D. 1444-45), to Muhammad al-Madani, described as a resident of Kashmir (also see p. 58 above). A number of epitaphs on the graves situated in the compound of the tomb of Sultan Zainul-Abidin, locally called Bad-Shah at Srinagar, belong to men of different vocations^ such as one Mir *(d.* A.H. 895=A.D. 1490) mentioned as 'the tree in the garden of rank and government', wife of (the minister) Saif Khan (A.H. 897=A.D. 1491-1492), Mirza Haidar Gorkan (A.H. 957=A.D. 1550), Malik Habib (A.H. 958= A.D. 1551) and one Nawwab and Amir'(A.H. 1 140=A.D. 1727-28) from among the men of authority or their dependents, Maulana Kamal (A.H. 866=A.D. 1461-62), Sayyid Asad (A.H. 868=A.D. 1463-64), Maulana Ishaq (A.H. 872=A.D. 1467), Qadi Muhammad (A.H. 897= A.D. 1491-92), Hafiz Kamal Masdar, Khatib and Imam (A.H. 900=A.D. 1494-95), Maulana Hafiz Hasan, Khatib (AH. 904=A.D. 1499), Mir Shah Baqir (A.H.996=A.D. 1587-88) and Hadrat Shaikh Baba Wali, the saint (A.H. 1001=A.D. 1592-93) among the men of learning and saintliness, etc.; some of these also contain names of poets, writers or masons, to wit, Ismat (A.H. 868=A.D. 1463-64), Mirza Buzurg with the poetic name Mahjur and Usta(d) Husain Sangtarash (A.H. 1002= A.D. 1594). etc. A metrical epigraph, composed by one Ayyub, furnishes an interesting piece of information that one Muhammad Salih was killed in A.H. 983 (A.D. 1575-76) in a night-assault after having shown great feats of valour.
[1]

MADHYA PRADESH

8. INSCRIPTIONS OF THE MUGHALS, DISTRICTS GUNA, RAISEN AND VIDISHA.—A damaged inscription of Jahangir from Khutawad (District Guna) records the construction of a fort and a well by Mirza Muhsin, most probably the governor of Malwa, in A.H. 1034 (A.D. 1624-25) during the time of the ministership of Khwaja Abul-Hasan, the work having been supervised by Shaikh Pahari; the metrical portion of the text was composed by one Nizari. An epigraph of Shah Jahan from Renkla (District Vidisha), recording the construction of a mosque by one Siddiqi in A.H. 1057(A.D. 1647-48), mentions the governor Nawwab Safdar Khan and the Faujdar Mirza Muhammad Mumin. A previously-noticed inscription from Malhargarh (District Guna), recording the construction of a step-well by Bahadur Shah, son of Alam Shah in the thirtieth regnal year (A. H. 1099=A. D. 1687-88) of Aurangzeb, furnishes the genealogy of the builder, according to which he was descended from Firuz, son of Qadir Shah, a brother of Tughluq Shah, who had established his independent rule at Kalpi; it also furnishes the information that the builder's father had settled down at Chanderi (District Guna). Another noticed inscription of the same emperor from Raisen furnishes information about the repairs carried out to the fort of Raisen, between the thirty-fifth and thirty-eighth regnal years (A.H. 1103-06 =A. D. 1691-95), and names among others, the supervisor Khwaja Yaqut, the Haris (Custodian), Shaikh Bahaud-Din Muhammad, the Amin, Haji Muhammad, the Mushrif and Anup Rai, the Tahwildar; it also gives the names of Muhammad Mansur, the governor and Muhammad Abid Khan-Daurani, the Sazawal. A damaged inscription of Alamgir II from Bedankheri (District Vidisha), recording the construction of a well, furnishes the

names of officials, to wit, the governor Maharajadhiraja Ram Raja, the Panch Pradhan Sri Rao Nanha Sahib, Gumashtadar Rai Anand Rai, son of Ballabh Raj, Sri Pandit Mahadev Raj, the Faujdar of the *pargana* Udaipur, Sri Pandit Ramchand, the Chau-dhari and the Zamindar of the same *pargana,* Barjor Singh and Bhagwan Das, respectively, etc. A damaged inscription of the time of Shah Alam II from Raisen, recording the construction of the tomb of a saint, refers to the chiefship of Nawwab Faid Muhammad Khan Bahadur (of Bhopal) and the governorship of Husain Khan, the Qaladar of Raisen which is stated to be situated in the *sarkar* of Alamgirpur-Bhilsa in *the suba* of Malwa; dated in his sixteenth regnal year (A. H. 1187=A. D. 1773-74), it refers to the emperor by his name Ali Gauhar.

9. INSCRIPTION OF THE SULTANS OF MALWA, DISTRICT GUNA.—Of the two new inscriptions of Ghiyathud-Din Khalji found at Chanderi, one assigns the construction of a building (tomb?), gardens and a reservoir to Ali, entitled Sher Khan, in A. H. 894 (A. D. 1488-89), and the other, a damaged record, seems to mention the construction of a tomb by the same noble man four years later.

RAJASTHAN

10. SUR INSCRIPTION, DISTRICT RAISEN.—A badly-damaged inscription of Sher Shah from Raisen, seems to refer to the construction of a well; its date is lost.

11. MISCELLANEOUS INSCRIPTIONS, DISTRICT NAGAUR.—Of the two inscriptions discovered by Shri N. M. Ganam of the Western Circle of the Survey, one, an epitaph from Didwana, records the martyrdom of one Rashid-Din Jhow, son of Khwajgi; it is dated A. H. 606 (A. D. 1210). The other belongs to the reign of Aurangzeb; it is dated A. H. 1080 (A. D. 1670) and refers to the construction of a mosque, a well and a tank by one Kalol Bai, the singer.

UTTAR PRADESH

12. SUR INSCRIPTION, DISTRICT MUZAFFARNAGAR.—An inscription of Islam Shah from Kairana assigns the construction of a mosque to Shaikh Harun, son of Shaikh Haji Harami, in A. H. 958 (A. D. 1551); it was inscribed by Abdullah, son of Abdul-Aziz, Mufti of the *qasba.* A new, but damaged, inscription of Muhammad Shah from the same place records the construction of a mosque by Shaikh Makan(?), son of Khwaja (?), in A. H. 961 (A. D. 1553-54).

13. INSCRIPTION, DISTRICT MUZAFFARNAGAR.—An inscription from Kairana states that Sahib Sultan, the mother of Shaikh Fudail, built a mosque in A.H. 1027 (A.D. 1617-18). For meeting the expenses of the *muadhdhin* (caller-to-prayers), oil for the lamp and carpets, etc., she endowed the income from the well situated in a village named Muhammadpur as well as from sixty-seven *pucca-bighas* of land of her own purchase and bequeathed six shops for the allowance of the attendants of the mosque.

14. INSCRIPTIONS OF THE MUGHALS, DISTRICTS MUZAFFARNAGAR AND SAHARANPUR.—An inscription of Humayun from Ambahta (District Saharanpur), dated A.H. 940 (A.D.

1533-34), records the name of Ali, son of Hasan Qushbegi, who was perhaps the builder of the mosque on which it appears. Another inscription, also of Humayun, from the same place, assigns the construction of a mosque to Hasan Gachgar in A.H. 942 (A.D. 1535-36). An inscription of Akbar from Gangoh in the same district, attributes the construction of a mosque to Darwish Muhammad, son of Shah Muhammad, who is designated as the Mir-i-barr (commander of land-forces of the king). Another inscription of the same emperor from Deoband (District Saharanpur) names Mirza Baig, son of Khwaja Muhib Ali, the Bakhshi, as having strived for and supervised the construction of a mosque in A.H. 965 (A.D. 1557). An inscription of Jahangir from Gangoh assigns the construction of a mosque to Shaikh Abdul-Basit in A.H. 1034 (A.D. 1624-25). An inscription of Shah Jahan, dated A.H. 1040 (A.D. 1630-31), from Kairana, records the construction of a mosque by Padmawati who is described as 'Maryam (Mary) of the age and Rabia Basri (a pious lady of renown) of the time'. Another inscription of the same emperor from the same place assigns the construction of a mosque to Shaikh Nasib in A.H. 1062 (A.D. 1651-52). An inscription of Aurangzeb from Deoband records that a Jami mosque was constructed by Abul-Maali al-Uthmani through the efforts of .Jahangir Quli Khan, the Faujdar, in A.H. 1078 (A.D. 1667-68). Another inscription of the same emperor from Thana Bhawan (District Muzaffarnagar) assigns the erection of the mosque to Shaikh Ahmad in A.H. 1114 (A.D. 1702-03). One more inscription of the same emperor from Sakrauda (District Saharanpur) records that the mausoleum of the local saint Hadrat Shah Sayyid Ruknud-Din, popularly known as Shah Nachchan was constructed through the efforts of the local Zamindar, namely Khan Muhammad, in A.H. 1118 (A.D. 1706).

15. LODI INSCRIPTION, DISTRICT SAHARANPUR.—An inscription of Sikandar Lodi from Deoband assigns the construction of a- Jami mosque to Miyan Firuz, son of Malik Muhammad, Afghan, in A.H. 916 (A.D. 1510).

III. NUMISMATICS AND TREASURE-TROVE[1]

GUJARAT

1. INDO-MUSLIM COINS, VASAN, DISTRICT GANDHINAGAR.—One hundred and eighteen Indo-Muslim silver coins were found. They are under study.

JAMMU AND KASHMIR

2. MISCELLANEOUS COINS, SRINAGAR MUSEUM.—All the unidentified coins in the collection of the Museum were classified. They include important gold issues of Kanishka, Huvishka, Vasudeva, Samudragupta and Chandragupta.

KERALA

3. BRITISH COINS AND A BRASS VESSEL, SOUTH WAYANAD, DISTRICT CALICUT.—A treasure-trove of twenty silver coins of King William IV and Queen Victoria and a small brass vessel were acquired.

MADHYA PRADESH

4. MUGHAL COINS, DUDHIA, DISTRICT BETUL.—Coins of the Mughal Emperors Shah Jahan and Aurangzeb were reported to have been found in the village during the digging of a pit.

5. MISCELLANEOUS COINS, DISTRICT BILASPUR.—Copper coins, kept in the Tahsil Treasury of Mungeli, were identified as imitations of Kushan coins and dumpy pieces.

6. SILVER COINS, RAJGARH, DISTRICT CHHATARPUR.—About one thousand silver coins were reported to have been found in the village. The report is yet to be confirmed.

7. MUGHAL COINS, DEOGARH, DISTRICT DEWAS.—Six hundred and sixty-eight silver coins of the Mughal period were reported to have been discovered in the village. Confirmatory report is yet to be received.

8. COIN OF SATYAGUPTA, TUMAIN, DISTRICT GUNA.—A square copper coin with the legend *Satyagupta* in Gupta characters was discovered at Tumain (ancient Tumbavana).

1 Information from: 1, the Director of Archaeology, Gujarat State; 2, the Director of Libraries and Archives, Jammu and Kashmir; 3, the Director of Archaeology, Kerala State; 4-7 and 9-12, the Director of Archaeology and Museums, Madhya Pradesh State ; 8, 13, and 31-33, Professor K. D. Bajpai, University of Saugar ; 14-20, the Director of Archives and Archaeology, Maharashtra State ; 21, Education Department of the Government of Manipur; 22-26, the Director of Archaeology, Mysore; and 27-30, the Director of Archaeology and Museums, Rajasthan State.

9. BRITISH COINS AND OTHER TREASURE-TROVE, KHAKHATPURA, DISTRICT INDORE.—Coins of Queen Victoria, and some other antiquities were found in a house.

10. MISCELLANEOUS COINS, DISTRICT MANDLA.—A large collection of coins, formerly in the custody of the District Treasury, Mandla, is understudy. It includes issues of Sultans of Malwa, Rana Sangram of Mewar and Akbar.

11. MUGHAL COINS, DEVARI, DISTRICT RAISEN.—Seven hundred and twenty-four silver coins of the Mughal period were reported to have been discovered in the village. The confirmatory report is awaited.

12. COINS OF HUSAIN SHAH, BAGHAD, DISTRICT SIDHI.—TWO copper coins of Husain Shah, the Sultan of Jaunpur, were discovered in the village during the construc tion of a wall.

13. MISCELLANEOUS COINS, VIDISHA, DISTRICT VIDISHA.—One of the coins bears the legend *rano siri satakanisa* in the Brahmi script of the middle of the second century B.C.; made of copper it is square. Another is a cast copper issue with the legend *Sivamitasa* in the Brahmi characters of the first century B.C. A third is an issue of the Kushan king Vima Kadphises; of the rare 'biga type', it is of silver alloy. There are sixteen copper coins of Ramagupta, of which four are of the 'lion type' and twelve of 'Garuda type'.

MAHARASHTRA

14. MUGHAL COINS, KOREGAON, DISTRICT AHMEDNAGAR.—A hoard of three thousand two hundred and seventy-one silver coins was discovered in 1966 in a dilapidated house of the village. On study, the coins were found to be issues of Akbar Jahangir, Shah Jahan, Aurangzeb, Shah Alam Bahadur, Farrukhsiyar, Muhammad Shah, Ahmad Shah and Shah Alam II.

15. COPPER COINS, JAMBHA-BAZAR, DISTRICT AKOLA.—The hoard of four hundred and forty-nine coins, discovered in 1962 while digging *gadhi,* was found to comprise *fulus.*

16. COPPER COINS, KANSHIONI, DISTRICT AKOLA.—A hoard of copper coins, weighing 75 1/2 kg., was discovered in 1961 when the *gadhi* had collapsed. The coins were deciphered as *fulus.*

17. INDO-MUSLIM AND BRITISH COINS, KUMBHARI, DISTRICT AKOLA.—The hoard discovered in 1962 during a digging operation in the *gadhi,* was found to contain two silver rupees of Queen Victoria and Indo-Muslim copper *fulus.* The total weight of the copper coins is 1.850 kg.

18. MUGHAL COINS, DHAMAK, DISTRICT AMRAVATI.—The hoard of copper coins weighing 100 kg. was found to contain Mughal *fulus* of Aurangzeb and Shah Alam **II** of the Elichpur mint.

19. SILVER COINS, KELKATI, DISTRICT OSMANABAD.—Seventeen *Rama-tankas* were discovered while digging for herbs in the village.

20. GOLD COINS, KELZAR, DISTRICT WARDHA.—The hoard of ninteen coins, discovered in 1962 during digging operations, was found, on study, to contain *padma-tankas* of the Yadava Singhana and Krishna.

MANIPUR

21. OLD COINS, MANIPUR.—About one hundred and twenty-five coins were collected from Kakching, Nambol, Thanga and other places. They are yet to be deciphered.

MYSORE

22. GOLD COINS, SHILTIBHAVI, DISTRICT BELGAUM.—A treasure-trove, consisting of two gold coins of 'Umamahesvara type' of the Vijayanagara king Harihara, twelve gold coins of the same type of the Vijayanagara king Devaraya and a large coin with Persian legend on both sides was reported.

23. MISCELLANEOUS OBJECTS, KAMALAPURAM, DISTRICT BELLARY.—A treasure-trove, comprising gold, coral, pearl and stone beads, was discovered.

24. GOLD COINS, CHIKKANARGUND, DISTRICT DHARWAR.—A treasure-trove of seventy-three gold coins belonging to the Vijayanagara dynasty was found. Seventy-one of the coins are of the 'Bala-Krishna type' belonging to Sadasivaraya.

25. GOLD OBJECTS, SALGUNDA, DISTRICT GULBARGA.—A treasure-trove of sixty-five gold pieces was discovered. The objects consist of old ornaments, including circular pendants. The latter bear extracts from the Quran and Persian legends on both sides.

26. COINS, SONTH, DISTRICT GULBARGA.—A treasure-trove of one hundred and ninety-four coins of the rupee-size was reported. While some coins are thick, others are thin. They have Persian legends on both the sides. A majority of them belong to the Mughal Emperor Alamgir Shah Alam.

RAJASTHAN

27. MISCELLANEOUS COINS, PALLU, DISTRICT BIKANER.—Two hundred and forty-two coins were acquired as a treasure-trove. They are under examination.

28. COPPER COINS, NAGARI, DISTRICT CHITORGARH.—Of the four coins acquired as a treasure-trove, three are punch-marked and one belongs to the *Sibi-janapada.*

29. MISCELLANEOUS COINS, DISTRICT PALI.—A treasure-trove of five hundred and seventy-five coins was reported. The coins are under study.

30. COPPER AND SILVER COINS, DISTRICT SIROHI—A treasure-trove of two hundred and thirty-five copper coins and forty-three silver coins is under study.

UTTAR PRADESH

31. TWO COINS, KAUSAMBI, DISTRICT ALLAHABAD.—One of the two coins bears the city-name *Kasavisa* in Brahmi script around a *chakra;* made of copper, it is square. The other is a new type of coin of the king Jethamitra of Kausambi with the figure of a horse on the reverse.

32. COPPER COINS, ALLAHABAD.—A circular coin with the city-name *Ajudhe* in Brahmi characters of the second century B.C. was identified.

33. TWO COINS, AHICHCHHATRA, DISTRICT BAREILLY.—One of the coins, a circular copper one, bears the legend *Bhadramitrasa.* The other, also of copper, is an issue of Vishnumitra of Panchala. Its obverse presents the figure of a *garuda* within an arched temple.

IV. OTHER IMPORTANT DISCOVERIES

ANDHRA PRADESH

1. ANCIENT MOUND, PEDDAMUDIAM, DISTRICT CUDDAPAH.—Shri S. Ramarao discovered sherds of black-on-red and megalithic Black-and-red wares.

GUJARAT

2. LATE STONE AGE SITE, KEVADIA, DISTRICT KAIRA.—A Late Stone Age site was located by Shri B.S. Kadam near village Kevadia on bank of Jethuli. Dam. The industry largely consisted of fluted cores, blades, scrapers, lunates and flakes of chalcedony, jasper, chert, etc.

KERALA .

3. ROCK-CUT CAVE, ELAMBULASSERY, OTTAPALAM, DISTRICT PALGHAT.—A circular cave with a top-opening was discovered by the Director of Archaeology, Kerala. Two vases of the Black-and-red Ware with globular profile and rounded base were also collected. They have been added to the collections of the Trichur Museum.

4. ROCK-CUT CAVES, MANGAD VILLAGE, KUNNAMKULAM, DISTRICT TRICHUR.—The Director of Archaeology, Kerala, discovered at village Mangad a laterite cave of the circular type with a rock-cut bench on the eastern side and a rock-cut tripod on the western side. Vases and bowls of the Black-and-red Ware were also recovered and added to the collections of the museum. No organic material was found either within the cave or inside the vessels.

5. MEGALITHIC SITE, KANIMANGALAM, DISTRICT TRICHUR.—An urn-burial site was located at Nedumpuzha in village Kanimangalam during the construction of a hostel for Women's Polytechnic, Trichur. The Department of Archaeology, Kerala, salvaged three pyriform jars from the site.

6. BURIAL JAR, SARVADHI HILL, SREEKARIAM, DISTRICT TRIVANDRUM.—Some broken jars were noticed by the Director of Archaeology, Kerala, during quarrying operations, but only one specimen of the pyriform type could be collected. It measured 1 m. height, 45 cm. in diameter at the mouth and 2.4 m. at the bulge and contained some bone-like material.

MADHYA PRADESH

7. MEDIEVAL SCULPTURES, HATTA, DISTRICT DAMOH.—During sporadic exploration by the staff of the Directorate of Archaeology, Madhya Pradesh, sculptures, mostly of medieval period were found at Raneh, Kethora, Sakor, Panchamnagar, Sakar and Kaurpura in Tahsil Hatta and at Damoh.

8. BRAHMANICAL SCULPTURES, DISTRICT RAISEN.—During reconnaissance survey of the villages in Tahsil Goharganj, some medieval Brahmanical sculptures were discovered by Shri C. Krishna and Shri V.K. Bajpai at Thana and Varahakhedi.

9. GUPTA TEMPLE, PIPARIA, DISTRICT SATNA.—Shri R.K. Shukla and Shri Niraj Jain of Satna discovered a temple of the flat-roofed type, assignable to about A.D. 500. The door-frame and other architectural fragments bear high artistic traits of the Gupta period.

10. SCULPTURE OF SIVA AS ARDHANARISVARA, DISTRICT SATNA.—A unique stone sculpture of Ardhanarisvara-Siva in *tandava* pose and having twenty hands holding various *ayudhas* was noticed in the collection of Shri Niraj Jain, Satna.

11. ROCK-CUT GUPTA SCULPTURE, SHANKARGARH HILL, DISTRICT SATNA.—Professor K.D. Bajpai noticed figures of standing Siva and Parvati carved on a rock on the Shankargarh hill. Siva holds *kamandalu* in his left hand.

12. ANCIENT TEMPLE REMAINS, DISTRICT UJJAIN.—In the course of silt clearance from the river-bed during Simhastha-Parva, an ancient temple similar to Mahakalesvara on plan was discovered by the staff of the Director of Archaeology, Madhya Pradesh. This is referred to as Karkesvara Mahadeva in ancient literature.

MYSORE

13. MEDIEVAL TEMPLES, DISTRICT DHARWAR.—Shri A. Sundara noticed certain temples of Hoysala style at Savadi and Naregal.

14. SAPTAMATRIKA-PANEL, YAVAGAL, DISTRICT DHARWAR.—Shri A. Sundara discovered a *Saptamatrika* panel at Yavagal.

15. MEDIEVAL TEMPLES, DISTRICT HASSAN.—The Director of Archaeology, Mysore, reported the discovery of a plain Hoysala temple at Karagunda bearing stepped pyramidal towers on its triple *garbha-grihas* enshrining Uma-Mahesvara, Siva and Hari-Hara.

At Chinchinsur he discovered a Siva temple with elegant wall-sculptures built in the later Chalukyan style and datable to the twelfth century.

16. VIRAGALS, GAJANUR, MALAVALLI, DISTRICT MANDYA.—A group of *viragals* illustrating varied types of sculptures was located in a field by the Director of Archaeology, Mysore. Of these, the larger *viragals* have three or four panels, while the smaller ones only one. The heroes *(yiras)* have been depicted either on horse-back or on foot, followed by ladies carrying children.

17. SCULPTURES AT ARASINAKERE, DISTRICT MYSORE.—The Director of Archaeology, Mysore, found *viragals* of various types and a statue of a colossal bull, about 5 m. in length and 4 m. in height. The figure of the bull is unfinished and may be ascribed stylistically to the sixteenth century.

18. ROCK-SHELTER, HIRE-BENKAL HILLS, DISTRICT RAICHUR.—Shri A. Sundara noticed five new rock-shelters with paintings in the hills of Hire-Benkal area. The

paintings depict human beings wearing animal skins with horns and tails, antelopes, bulls, tigers, peacocks, horse-riders and groups of dancing men.

One of the rock-shelters yielded a fluted core on chert and a fragment of grey ware painted in red.

RAJASTHAN

19. SCULPTURES, DISTRICTS BHARATPUR AND TONK.—Some fifty reliefs in red sandstone in Karauli area and six sculptural pieces at Chatsu (District Tonk) were dis covered by the Director of Archaeology and Museums, Rajasthan.

20. VISHNU IMAGE, BILOT, DISTRICT CHITORGARH.—A Vishnu image (1.3 m. high) with a carved *parikara* was acquired by the Director of Archaeology and Museums, Rajasthan. The image belongs to *circa* ninth-tenth century.

21. TERRACOTTA FIGURINE, MUNDA, DISTRICT GANGANAGAR.—A terracotta show ing Virabhadra, ascribable to the late Kushan period, from Munda was acquired by the Director of Archaeology and Museums, Rajasthan.

22. LATE STONE AGE SITE, JALOR, DISTRICT JALOR.—Shri N. M. Ganam discovered a microlithic site at Dabla-ka-Dhora at the base of the western slopes of Jalor mountain range. The microliths consisted of blades, cores and scrapers on chert, chalcedony and agate.

23. LATE STONE AGE SITE, MANDOR, DISTRICT JODHPUR.—Shri J. P. Joshi, assist ed by Shri T. S. Khatwani, discovered a Late Stone Age site at Mandor, between the Panchkuda Chatris on the eastern bank of the Dhola Nala and the nearby bridge. The site has microliths spread over an area of 500 sq. metres, which seems to represent a microlithic factory-site. The industry largely consisted of fluted cores and blades, besides points, awls, side- and end-scrapers and flakes. The material was mainly chert, chalcedony, agate and jasper.

24. LATE STONE AGE SITE, SILANWAD, DISTRICT NAGPUR.—Shri N. M. Ganam dis covered a microlithic site yielding blades and cores.

WEST BENGAL

25. BLACK-AND-RED WARE, DISTRICT BIRBHUM.—Shri V. Sen found black-and-red ware at Bansra, Batikar, Beharia, Bergram, Gopalnagar, Hatikra, Kayera, Keora, Khustikuri, Kurmitha, Mangaldih and Nachanshaha.

He also discovered channel-spouts at Bergram, Gorapara, Hatikra, Hansra, Kayera and Kurmitha.

V. RADIOCARBON DATES[1]

The following radiocarbon dates[2] were measured by the Tata Institute of Fundamental Research, Bombay, during August 1967-August 1968. The sites[3] have been arranged State-wise. The dates are based on the radiocarbon half-life value of 5730 years. For B.C./A.D. scale, 1950 has been taken as the reference year.

ANDHRA PRADESH

1. PALVOY, DISTRICT ANANTAPUR

TF-701. Neolithic culture. 3915±105 (1965 B.C.)

Charcoal from depth 3·5 m. NaOH pretreatment was also given.

BIHAR

2. CHIRAND, DISTRICT SARAN

(i) TF-444. Black-and-red ware deposits. 2665 ± 105 (715 B.C.). Charred wood from Trench CRD-X, locus A2, layer 16, depth 10-5 m. NaOH pretreatment was also given.

(ii) TF-445. Pit with microliths. 3600 ± 100 (1650 B.C.)

Wood from Trench CRD-X, locus A2, pit sealed by layer 11, depth 8-2 m. NaOH pretreatment was also given. Comment : sample is from a pit in natural soil which yields large number of microliths and is sealed by black-and-red ware deposits.

- (iii) TF-446. N. B. P. Ware deposits. 1985 ± 105 (35 B.C.)

Charred rice from Trench CRD-IC, locus B' - C', layer 6, depth 3-25 m. NaOH pretreatment was also given. Comment : sample derived from the top of N.B.P. Ware deposits.

GUJARAT

3. LANGHNAJ, DISTRICT MEHSANA

TF-744. Microlithic culture. 3990 ± 110 (2040 B.C.)

Bones from Trench BFGC, depth 1-2-1-8 m. Comment : different bone samples Reg. nos. 3828,3921, 4707, 4326 and 5188 from lower and middle levels were mixed for C^4 dating. As only inorganic fraction was dated, contamination probability is high.

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[1]Contributed by Shri D.P. Agrawal and Kumari Sheela Kusumgar.

[2]Further details of the samples can be had from the submitting organizations.

[3]Samples submitted: 1, 3, 5, 10 and 11 by the Deccan College; 2 by the Director of Archaeology, Bihar; 4 and 9 by the Department of Archives and Museums, Maharashtra; 6 by the Archaeological Survey of India; 8 by the Nagpur University; 12 by the Karnatak University; 13 and 14 by the Sahni Institute of Palaeobotany; and 15 and 16 by the Asutosh Museum.

MADHYA PRADESH

4. TRIPURI, DISTRICT JABALPUR

TF-681. Early Historic Period. 2220 ± 105 (270 B.C.)

Charcoal from Locus II, layer 5, depth 2-8 m. Field no. 246. NaOH pre-treatment was also given.

5. KAYATHA, DISTRICT UJJAIN

(i) TF-674. N. B. P. Ware deposits. 2420 ± 100 (470 B.C.)

Charcoal from Trench KTH-4, layer 11, depth not given. Field *no.* 15. NaOH pretreatment was also given. Comment : P. G. Ware was also associated.

fii) TF-680. Chalcolithic deposits. 3965 ± 100(2105 B.C.) Charcoal from Trench KTH-3, layer 13, depth not given. Field no. 21.

(iii) TF-678. Chalcolithic deposits. 3635 ± 100 (1685 B.C.)

Charcoal from Trench KTH-4, layer 18. Field no. 19.

(iv) TF-676. Chalcolithic deposits. 3255 ± 105(1305 B.C.)

Burnt wheat grains from Trench KTH-4, layer 14, depth not given. Field no. 17. NaOH pretreatment was also given.

(£) TF-679. Chalcolithic deposits. 3250 ± 135 (1300 B.C.) Charcoal from Trench KTH-3, layer 9, depth not given. Field no. 20. (vi) TF-776.* Chalcolithic deposits. 3555 ± 115 (1605 B.C.)

Charcoal from Trench A, locus 3, layer 4, depth not given. Field no. 111. NaOH pretreatment was also given.

(vii) TF-777.* Chalcolithic deposits. 3730 ± 100(1780 B.C.)

Charcoal from Trench A, layer 5, depth not given. Field no. 361. NaOH pre-treatment was also given.

(viii) TF-778.* Chalcolithic deposits. 3655 ± 95 (1705 B.C.)

Charcoal from Trench A, layer 7, depth not given. Field no. 599. NaOH pre-treatment was also given.

(ix) TF-781.* Chalcolithic deposits. 3785± 100 (1835 B.C.)

Charcoal from Trench A, layer 7, depth not given. Field no. 697.

(x) TF-781.* Chalcolithic deposits. 3830± 105 (1880 B.C.)

Charcoal from Trench A, layer 9, depth not given. Field no. 976. NaOH pretreatment was also given.

6. UJJAIN, DISTRICT UJJAIN

(i) TF-407. Black-and-red ware deposits. 2050 ± 100 (100 B.C.) Charcoal from Locus 0-1, layer 23, depth 4-4 m. Field no.UJN-17, Ext: 108. (ii) TF-409. N.B.P. Ware deposits. 2400 ± 95 (450 B.C.)

Charcoal from Locus IV-V, layer 28, depth 5-50 m. Field no. UJN 28/155. NaOH pretreatment was also given.

* Submitted by the Deccan College Post-graduate and Research Institute, Poona; rest by'Vikram University, Ujjain.

MADRAS

7. KAKATHOPE, DISTRICT NILGIRIS

TF-696. Pollen Zone. 24275 + 760
-- 695 (22325 B.C.)

Organic mud from 3.20-3.50 m. depth. Field no.4789/3.

MAHARASHTRA

8. TAKALGHAT, DISTRICT NAGPUR

TF-784. Painted pottery deposits. 2505 ± 100 (555 B.C.)
Charcoal from Trench TKG-I, locus III'-IV', layer 7A, depth 3.03 m. Field no.TKG 216.

9. TER, DISTRICT OSMANABAD

(i) TF-746. Historical. 1690 ± 105 (A.D. 260)
Charcoal from Layer 3, Reg. no. 5/619. NaOH pretreatment was also given.
(ii) TF-747. Historical (?). 2105 ± 100 (155 B.C.)
Charcoal from Layer 22. Reg. no. 5/573. NaOH pretreatment was also given.

MYSORE

10. HALINGALI, DISTRICT BIJAPUR

(i) TF-685. Megalithic deposits. 2030 ± 100 (80 B.C.)
Charcoal from Locus HGL, Mg III, depth 1.31-1.4 m. Field no.HGL, MgIII-24. NaOH pretreatment was also given.

11. TERDAL, DISTRICT BIJAPUR

(i) TF-683. Neolithic culture. 3720 ± 120 (1770 B.C.)
Charcoal from Trench 1, layer 3, depth 0.45 m. Field no. 40.
(ii) TF-684. Neolithic culture. 3885 ±100 (1935 B.C.),
Charcoal from Trench 1, layer 2, depth 0.17 to 0.25 m. Field no. TRDL-28.

12. HALLUR, DISTRICT DHARWAR

(i) TF-576. Neolithic culture. 3375±110 (1425 B.C.)
Charcoal from Trench 1, layer 8, depth 36 m. Field no. HLR 1965. NaOH pretreatment was also given.
(ii) TF-586. Neolithic culture. 3145±100 (1195 B.C.)
Charcoal from Trench 2, pit sealed by layer 8, depth 2.8 m. NaOH pretreatment was also given.

13. MANGALORE, DISTRICT SOUTH KANARA

(i) TF-740 (b). Bore-hole 59. 2045±95 (95 B.C.) Shelly sand from Bore-hole 59 between depth 11.89-13.47 m.

(ii) TF-740 (d). Bore-hole 59. 2035±105 (85 B.C.)

Carbonaceous clay from Bore-hole 59 between depths 58.75-60.42 m.

(iii) TF-741. Bore-hole 64. 2040±105 (90 B.C.)

Shelly sand from Bore-hole 64 between depths 12.77-17.26 m.

RAJASTHAN

14. SAMBHAR SALT LAKE, DISTRICT JAIPUR

(i) TF-698. Late-Quaternary. 8835±140 (6885 B.C.)

Organic debris from depth 3.12-3.20 m. Field no. S-2/312-320. Sample no. RC-2.

(ii) TF-738. Late-Quaternary. 8300±135 (6350 B.C.)

Organic debris from depth 2.70-2.85 m. Field no. S-2/270-285. Sample no. RC-3.

(iii) TF-739. Late-Quaternary. 4665±115 (2715 B.C.)

Organic debris from depth 1.50-1.60 m. Field no. S-2/150-160. Sample no. RC-4.

WEST BENGAL

15. RAJBADIDANGA, DISTRICT MURSHIDABAD

(i) TF-636. Historical. 1710±95 (A.D. 240)

Charcoal from Trench B-5, layer 8, depth 3.30 m.

(ii) TF-629. Historical. 1540±95 (A.D. 410)

Charcoal from Trench B-3, layer 12A, depth 3.5 m. Field no. 3. Comment: associated finds have terracotta seals.

(iii) TF-634. Historical. 1565±95 (A,D. 385)

Charcoal from Trench B-5, layer 8, depth 3.1 m. Field no. 9.

16. CHANDRAKETUGARH, DISTRICT 24-PARGANAS

TF-367. Historical. 680±95 (A.D. 1270)

Shell from locus H2, layer not given, depth 2.6 m. Sample no. 2. Comment: sample will date the last phase of Khana-Mihirer-Dhipi.

VI. MUSEUMS

1. ARCHAEOLOGICAL MUSEUM, AHAR.—The Museum was reorganized for a better presentation and the objects were chronologically rearranged in wall-cases. Wooden pedestals were provided for sculptures.

2. RAJPUTANA MUSEUM, AJMER.—The Museum was shifted from the building to the rooms once used as courts. In the rooms, which were interconnected and turned into a gallery, the paintings, sculptures and inscriptions were arranged in chronological order. Wooden pedestals were provided for twenty-nine sculptures. Electric installations were also completed.

3. MUNICIPAL MUSEUM, ALLAHABAD.—Of the new acquisitions, the following are noteworthy: a terracotta female bust having two heads, from Faridpur, District Bareilly; a monkey (Hanuman ?) figure datable to the eleventh-twelfth century A.D., from Kausambi; copper coins bearing the Brahmi legend *Kanvasya* or *Kanhasya,* from Lachchhagiri, District Allahabad; medieval terracotta ornament-moulds from Kohadar, about 48 km. south of Allahabad in Tahsil Karchana, District Allahabad; Northern Black Polished Ware sherds from a village Chibaiya, about 19 km. east of Allahabad; and seals and sealings from Kausambi, Kanauj and Jhusi. Of the sealings mention may be made of one from Kausambi bearing the legend *Rajno Parvatasya* in the script of the second century B.C.; a specimen from Kanauj bearing the legend *Baladhikaranam* in Gupta characters of the fifth century A.D. ; and one from Jhusi with the legend *Jitam Bhagavata* in Brahmi characters of the second-third centuries A.D.

4. GOVERNMENT MUSEUM, ALWAR.—With a view to improving the presentation, the sections on paintings and manuscripts section were provided with modern show-cases.

5. ARCHAEOLOGICAL MUSEUM, AMARAVATI.—A silver relic-casket with beads and other usual contents was discovered from the back of one of the *stupa*-slabs in the Archaeological Museum, Amaravati, while the slab was being cleaned for display purposes. The relic-casket was cleaned and strengthened for display in the gallery. The Museum also acquired four architectural pieces from a villager who had discovered them in his field.

6. SHRI BHAVANI MUSEUM, AUNDH.—Some of the exhibits of the Museum were displayed at the International Tourist Fair, Bombay. The Museum also acquired some modern paintings and published a catalogue of exhibits and a booklet on selected paintings. A temporary shed was constructed for the reserve-collection.

7. MYSORE GOVERNMENT MUSEUM, BANGALORE.—The Archaeological Section of the Museum was reorganized and an Educational Exhibition was also held. The objects acquired during the year include: bronze images representing Chandrasekharamurti, Somaskanda, Parsvanatha; twenty-six pottery pieces and a tool-core from T. Narsipur; and a copper-plate each of the Gangas and the Kadambas.

8. MUSEUM AND PICTURE GALLERY, BARODA.—The programme of modernizing

display with appropriate colour-scheme and internal lighting in the Archaeology Section continued during the year. The museum acquired a number of stone sculptures, terracottas and coins. Noteworthy among the sculpture-pieces are: an *ekamukha-linga* (pl XXVIII A) of the Kushan period, a Gupta Vishnu (pl. XXVIII C) and a head wearing kirita-mukuta (pl. XXVIIIB) from Kutch belonging to the Kshatrapa period.

9. HINDUSTAN CHARITY TRUST MUSEUM, BHOPAL.—For the purpose of collecting representative specimens of regional sculptures for the Museum, the State Department of Archaeology, Madhya Pradesh, conducted reconnaissance surveys in Damoh, Raisen and Sehore Districts.

10. STATE MUSEUM, BHUBANESWAR.—The Museum collected a set of copper-plates belonging to Narendra Dhavala of the Nala dynasty, dated in the 103 year of the Bhauma era (A.D. 928); two copper-plates, one of which was issued by Bhauma III, the Ganga ruler of the fourteenth century, and the other by Ramadeva *alias* Suhyaketu of the tenth century.

While the Mining and Geology gallery of the Museum was organized and opened, progress was" maintained in the Mammal Gallery of the Natural History Section and in the Agriculture, Prehistory and the Bronze Galleries.

11; PRINCE OF WALES MUSEUM, BOMBAY.—The Museum acquired as a gift, twenty-nine rare bronze images, from Shrimati Amaravati Gupta's collection. Outstanding among these images, are: a Buddha from Nagapattinam of the early Chola period; Padmapani from Kashmir of the tenth century; two Vishnu images, one of the Gurjara-Pratihara period (eighth century) from Uttar Pradesh and the other from eastern India belonging to the Pala period; besides Jaina images, some of which are inscribed and dated, the dates ranging between the eighth and fifteenth centuries. Of the Jaina. images four are from Akota, seven from Vasantgadh, ten from Gujarat and Rajasthan and one from Mysore. Two show-cases with proper arrangement of lighting and pedestals were set-up for these newly-acquired bronzes, in the Select Indian Bronze Gallery. Other notable antiquities acquired during the year include : a terracotta mother-goddess (pl. XXIX A) of the first century B.C. and a carved brick (pl. XXIX B) with two standing figures, of the fifth-sixth century, both from Mathura and, a bronze Buddha from Kashmir, belonging to the ninth-tenth century.

The entire reserve-collection of tiles and carved bricks from Mirpur Khas was shifted to a new store on the second floor and arranged in a serial order on new shelves.

The broken sculptures from Pitalkhora were also assembled. A catalogue of sculptures was prepared, besides a classified list of coins in the Museum collection.

12. ASUTOSH MUSEUM OF INDIAN ART, CALCUTTA.---The Museum shifted to its new building in the western wing of the Centenary Buildings of the Calcutta University. The entire collection consisting of stone sculptures, terracottas, wooden objects, bronzes, paintings, textiles and specimens of folk-art was organized, as far as possible, on regional and chronological basis.

The largest collection of objects, numbering about one thousand, was made during the explorations in lower, central and western Bengal and from the excavations at Chandraketugarh. Datable from *circa* fourth century B.C. to the medieval period,

it comprises terracotta, stone, wood, bronze and ivory objects besides coins, paintings, textiles and objects of folk-art. From Chandraketugarh, again, Shri Binoy Krishna Das collected some terracotta plaques showing male and female figurines in low relief, toy-carts with enigmatic and legendary birds and animals, stone and ivory beads, ear-studs, combs and hair-pins, a number of punch-marked and cast copper coins and a gold coin of the 'Archer Type' of Samudragupta.

Asa result of explorations in the western parts of Bankura and Purulia Districts, Shri Sambhunath Ghatak collected some ground stone axes and microliths. On a similar exploration-tour to Pokharna and its vicinity in the Bankura District, Shri C.R. Roychoudhuri collected some early historical terracottas, stone beads, fragments of the Northern Black Polished Ware and medieval sculptures.

The Museum also acquired through gift and purchase the following : a window-panel in stone from Agradwip, District Burdwan, datable to *circa* eleventh century and showing the figure of a *dhyani*-Buddha and a Bodhisattva; a red sandstone image of Buddha in *bhumisparsa-mudra* with an inscription; bronze objects from Orissa, Bengal and Nepal, datable between the fourteenth and eighteenth centuries, among which an elaborately decorated votive brass tablet of the sixteenth century from Nepal, showing a gilded Lokesvara, is worthy of mention; besides several tribal bronzes from Districts Bankura and Midnapore.

The manuscript-collection of the Museum was enriched by the acquisition of several seventeenth-eighteenth century palm-leaf manuscript pages of the *Pancharaksha* and illustrations of Puranic episodes from Ganjam in Orissa.

To the folk-art collection of the Museum were added objects of wood, clay, paper and pith in the traditional style and technique. Also noteworthy are the specimens of arts and crafts and textiles of the early eighteenth and nineteenth centuries from Bengal and Rajasthan and stone moulds for preparing mango cakes from Orissa.

13. INDIAN MUSEUM, CALCUTTA.—The Museum acquired during the year, through exploration, gift or purchase: a fragmentary ornamental stone door-jamb pf the twelfth century from Patharkati, District Midnapore; two late seventeenth century terracottas from a ruined mosque at Masjidbati, District 24-Parganas one of which depicts a rider on a caparisoned horse and the other a rampant lion trampling a couchant elephant *(gajavyala)*; a female torso in white marble from Kanchannagar, District Burdwan, datable to the late eighteenth century; potsherds, decorated bricks, terracotta beads and cowrie shells from Hiranyapur, Masjidbati, Radharanipur, and Bharatgarh in District 24-Parganas; besides four Naga and two Kshatrapa coins.

As a part of the reorganization programme, a new Bay in the Long Gallery was rearranged exhibiting south Indian sculptures, especially the sculptures of the Vijaya-nagar school from Hampi, besides improving the lighting arrangements in the Bhumara and Mathura Bays of the Long Gallery and in the Gandhara and Bronze Galleries. The other changes effected include: an extension of the new wing of the Epigraphic Gallery and inclusion of trans-Indian inscriptions; the shifting of the two life-size Bharhut figures from the Entrance Hall to the Bharhut Gallery; the remodelling of a show-case and the repainting of the others in the Bronze Gallery; and the providing of trilingual labels on perspex sheets for the sculptures from Orissa and Central India displayed on the verandahs of the ground floor. The reorganized Stone Age Section of the Prehistory

Gallery, showing cultural evolution by means of actual specimens and visual aids, and a new Manuscript Gallery, showing specimens from the sixth to the nineteenth century, were opened to the public.

14. BHURI SINGH MUSEUM, CHAMBA.—Twenty-three leaves of rare eighteenth century Pahari paintings and sketches, four carved stone-slabs and sculptures, thirteen pieces of embroidered textiles including Chamba *rumals* from Bilaspur, two sets of *Ganjifa* or *Ganjpo* playing-cards, an inscribed copper-plate of the nineteenth century and fourteen manuscripts were added to the Museum-collection. One of the manuscripts, written in Takri, bears the signatures of Balwant Singh, a patron of Pahari painting and a younger brother of Raja Ranjit Dev of Jammu (A.D. 1735-81).

15. MUSEUM AT OLD CHURCH, DAMOH.—Organization of the Museum continued during the year and early medieval sculptures were acquired from sites in the Hatta Tahsil, District Damoh.

16. CHANDRADHARI MUSEUM, DARBHANGA.—The Museum collected, during the year, manuscripts of *Vishnu-Purana, Sraddha-paddhati,* etc., a chart of the Darbhanga Raj from Mahesh Thakur to Rameshwar Singh, a silver coin of the Mughal emperor Alamgir IT, mutilated images of six-armed Vishnu and Lakshmi-Narayana. The new museum-building was nearly complete.

17. STATE MUSEUM, GAUHATI. —The Museum acquired thirty-six Ahom coins and three coins of Shah Alam, besides textiles and other objects including coins of some foreign countries.

18. GOVERNMENT MUSEUM, GULBARGA.—About thirty sculptures from the Buddhist site of Sannathi were added to the Sculpture Gallery of the Museum.

19. ARCHAEOLOGICAL MUSEUM, HALEBID.—Small objects including copper-plates, wood-carvings and coins were exhibited in a structure adjacent to the open-air museum housing the sculptures.

20. ARCHAEOLOGICAL MUSEUM, HAMPI.—The Museum acquired one hundred and seventeen copper coins of the Vijaynagara rulers. Twenty-five *naga* and *nagini* figures, were displayed in a row in the open courtyard of the Museum building. The construction of a new building for the Museum is in progress.

21. STATE MUSEUM, HYDERABAD.—The new Museum building was completed and arrangements were made for display of paintings. The coin-collection of the Museum was further enriched by the acquisition of one thousand five hundred and forty-four coins, of which, sixty-six were of gold, one hundred of base gold, six hundred and ninety-four of silver and six hundred and twenty-four of copper. These coins represent various dynasties such as the Yadava, Vijayanagara, Bahmani, Qutb Shahi, Mughal, and Asaf Jahi. The Museum also acquired eighteen sets of copper plate inscriptions from the collection of the late Shri M. Somasekhara Sarma, besides the copper-plates of Parantaka I, Vikramaditya and of Santayalinga of Srisailam temple.

22. DISTRICT MUSEUM, JABALPUR.—Loose sculptures from Tripuri were collected and shifted to the District Collectorate and the recording was in progress.

23. CENTRAL MUSEUM, JAIPUR.—The two rooms on either side of the Evolution Gallery were reorganized and provided with compact cases to display decorative shields depicting *Ramayana* and *Mahabharata* scenes. One compact show-case was devoted to textiles of Rajasthan.

24. SARDAR MUSEUM, JODHPUR.—The sections on Arms and Natural History were provided with show-cases.

25. ARCHAEOLOGICAL MUSEUM, KHAJURAHO.—The new museum building was completed and declared open to the public. The collection, comprising select loose sculptures and architectural pieces from Khajuraho, was displayed in five rooms, namely the Main Hall (pl. XXX A) and the Jaina (pl. XXX B), Vaishnava, Saiva and Secular Galleries. The remaining pieces were arranged in the open-air enclosure, formerly housing the collection, to form the reserve or study collection.

26. KITTUR RANI MEMORIAL MUSEUM, KITTUR.—A new museum housing a large number of sculptures, mostly Chalukyan, was opened in the memory of Kittur Rani Channamma.

27. KOLHAPUR MUSEUM, KOLHAPUR.—Bronzes from Brahmapuri were exhibited by the Museum at the International Tourist Fair, Bombay.

28. ARCHAEOLOGICAL MUSEUM, KONARK.—The Museum, which houses sculptures and architectural fragments, originally forming part of the monuments and recovered from debris and sand, was reorganized in a new building which will be thrown open to the public shortly. The exhibits were arranged in three galleries.

At the entrance of the Museum has been displayed the figure of a musician. A chariot-wheel reconstructed from the fragments of different wheels of Temple 1, a large sandstone image of Surya, a khondalite image of multi-headed Bhairava and a few chlorite sculptures including one representing perhaps king Narasimha I holding a discourse, are the chief exhibits in Gallery 1.

In the adjoining hall, Gallery 2, are displayed a reconstruction of a part of the temple-wall, a large sculpture of a celestial musician, a lotus-ceiling, and animal-friezes variously on pedestals or brackets. Inside the show-cases in this Gallery are displayed small and medium-sized objects, and sculptures representing bracket-figures, human and divine heads, erotic couples, etc.

In Gallery 3 have been presented, among other other objects, a colossal seated Surya image, two large-sized nymphs, a panel with Gaja-Lakshmi, an incomplete panel with *navagrahas* and a few slabs with animal motifs.

29. STATE MUSEUM, LUCKNOW.—Two new galleries Medieval Sculptures and Bronzes were set up in the Museum, and the display was organized emphasizing the iconography of the different deities. The Terracotta Gallery was provided with a new facade, a wall-panel and show cases with improved designs. Transliterated labels and translations were provided to the inscribed exhibits to facilitate study.

30. GOVERNMENT MUSEUM, MADRAS-The Museum received, as treasure-trove finds,

several bronzes and other metal objects from Districts Tiruchhirappalli, Madurai, Thanjavur and South Arcot besides a semi-circular architectural piece carved with *srivatsa* in low relief and six inscribed stones from Illangadu in Taluk Wandiwash, District North Arcot. The other acquisitions, through gift or purchase, were a Nepa-lese Tara in bronze, six wood carvings from District Thanjavur, paintings in Ahmada-bad and Tanjore styles, a stone sculpture of *grama-devata,* a Chinese box, a mandarin's scarf and other miscellaneous art-objects. The exhibits in the New Buddhist Gallery were displayed on wooden planks and the terracottas exhibited in the mezzanine floor of the New Extension Gallery were provided with fresh descriptive labels. An exhibition on Temple Arts was arranged during the International Campaign for Museums, in October 1967.

31. STATE MUSEUM, MANIPUR.—The Museum, which has in its collection over seven hundred and fifty objects, continued its collection of ethnological, zoological, botanical and geological specimens. Show-cases were prepared for display.

32. ARCHAEOLOGICAL MUSEUM, MATHURA.—The total number of acquisitions during the year comprised fourteen sculptures, five terracottas and five miscellaneous objects. The most important among these are a seventh-century sandstone image of Surya (pl. XXXI A) in relief, a ninth-century stone relief representing Revanta with his entourage, and another stone relief of *circa* eighth-ninth century from Mathura depicting four of the *dasavataras* (pl. XXXI B) viz., Rama, Balarama, Kali and Buddha. An interesting iconographical feature of the last-mentioned relief is the lozenge-shaped *kaustubha* mark on the chest of Buddha who is shown in *dhyana-mudra.* The other notable acquisitions include a relief of the Kushan period, showing *Ekanamsa* flanked by Balarama and Vasudeva Krishna, Gada-devi of the Gupta period, a relief showing the dwarf incarnation of Vishnu of the medieval period, a jewellery mould, an inscribed jar and an archaic terracotta mother-goddess figure.

33. DEPARTMENT OF ARCHAEOLOGY MUSEUM, MYSORE.—Several *viragals,* stone sculpture of Virabhadra and a ceiling panel depicting three of the *ashtadikapalas,* were acquired.

34. CENTRAL MUSEUM, NAGPUR.—A copper-plate grant consisting of four plates and a seal, of the Vakataka ruler Pravarasena II, issued in his thirty-second regnal year, was a noteworthy acquisition during the year. It was discovered at Pauni in District Bhandara. The other additions included two late sculptures depicting respectively a male human figure and a figure with three-headed tiger from Kelzar in the District Wardha and a variety of unfinished and finished beads of semi-precious stones from Mahurzari near Nagpur. Rearrangement of the gallery and changing of labels was also completed. Some exhibits from the Museum were also sent for display at the International Tourist Fair, Bombay. .

35. ARCHAEOLOGICAL MUSEUM, NALANDA.—Reorganization of the galleries with artificial background and newly-designed brackets was completed.

36. NATIONAL MUSEUM, NEW DELHI.—A significant addition was made to the museum-collection by a comprehensive collection of three hundred and fifty-two Pre-Columbian art objects. These objects, given as a gift by Shrimati Alice and Shri Nasli

Heeramaneck of New York, U. S. A., are representative specimens of the civilizations of Mexico and other countries of Meso-America, like Peru, Chile, Brazil, Argentina, etc. These antiquities, which range in date from *circa* 1500 B.C. to the early sixteenth century, consist of stone, wood and metal objects, besides pottery and textiles. The antiquities were displayed in a gallery on the second floor of the - Museum and the exhibition was declared open by the President of India. Along with this gift was also received a collection of nearly two hundred reference books on Pre-Columbian art. The Museum also received as gifts a Mongolian manuscript and two printed illustrated books from the Prime Minister and two Peruvian textiles, two hand-fans of bird-feathers and a mattress used by the Garo Tribes from other sources. The Archaeological Survey of India also gave on loan to the Museum four first-century B.C. sculptures from Sanchi, a sculpture from Aihole of the seventh century, a tenth-century panel depicting dance, music and acrobatic scenes from Harshanatha, Sikar, and a lion-capital (pl. XXXII) from Khokhrakot mound in District Rohtak. The Museum also added to its collection, by purchase, one hundred and thirty-two art objects consisting of stone sculptures, bronzes, wood-carvings, miniature paintings, copper-plate grants, manuscripts, textiles, etc.

To foster a better understanding of Indian art in other countries, the Museum presented twelve art objects consisting of stone sculptures, wood-carvings and terracotta figures and ranging in date from the fifth to the nineteenth century to the Asian Museum, Moscow. It lent sixteen anthropological specimens and two antiquities from Mohenjo-daro for an Exhibition of Folk Arts, to the Philadelphia Museum of Art, Philadelphia, and two bronzes of the Chola and Pala periods to the University of Sydney, for an exhibition of Indian Art. The Museum also gave a representative collection of Indian arms on permanent loan to the National Defence Academy Museum, Khadakavasala. Twelve photo-enlargements were lent to the Museum and Picture Gallery, Baroda, for an Exhibition on Indian Musical Instruments.

In the Cultural Exchange Programme with other countries and museums in India, the Museum sent a few paintings and sculptures to the Government of Sweden and thirty-five photo-enlargements of monuments and reproductions of miniatures to the Socialist Republic of Rumania. Two stone sculptures of the Chola period were exchanged for two stone sculptures and two wood-carvings of the Renaissance period with the Philadelphia Museum of Art, with a view to building up a collection for the proposed Western Art Gallery in the Museum. A terracotta from Pawaya and a bronze from Sirpur were received by the Museum from the Government of Madhya Pradesh, in exchange of two Pallava-Chola stone sculptures.

In the Changing Exhibitions Gallery, to mark special occasions, the Museum organized exhibitions of: Recent Acquisitions, comprising sculptures and bronzes, including a few representative examples of Pre-Columbian art; a temple-car or *ratha* from Pandanallur; A Vision of Royal Personality in India, on the occasion of the ICOM Second International Campaign for Museums and the Twentieth Anniversary of ICOM; the Development of Indian Scripts, on the occasion of a Seminar on Deva-nagari Script; Rare Stone and Bronze Sculptures; and Sports of Krishna (in miniatures) and Mughal Miniatures, on the occasion of the UNCTAD Conference. A permanent exhibition of the Heeramaneck's collection of Pre-Columbian Art was also set-up. In its Extension Programmes, the Museum sent two circulating exhibitions on the Museo-Jeep to the schools in Delhi.

The Museum also played host to the annual meeting of the Museums Association of India, in which a seminar on "Museums—the Keynote of our Time" was organized. The Museum also participated in the Fifth Museum's Camp on "Education and Presentation", organized by the Ministry of Education at Calcutta.

A' new show-*cum*-sales room was set-up by the Museum for spot-purchases by the visitor, of art books, reproductions of miniatures, picture post-cards, plaster-casts, etc. Besides the regular educational programmes, the Museum also provided short training courses to the students of Museology from Baroda and Calcutta Universities and some personnel from various Museums in the country.

37. PATNA MUSEUM, PATNA.—The fresh acquisitions during the year include: two Buddha figures of the Pala Period from District Saharsa; and figures of Padmapani Avalokitesvara, Simhanada Lokesvara and three Buddha figures of the Pala period, a door-jamb of the post-Gupta period, and standing figures of Vasudeva and Balarama of the Kushan period, all from District Gaya.

38. ARCHAEOLOGICAL MUSEUM, SANCHI.—The antiquities in the Museum were physically verified and reaccessioned and rearranged according to the new accession numbers.

39. SHRI CHHATRAPATI MAHARAJ MUSEUM, SATARA.—The Museum, which purports to be a Museum of the Maratha history, acquired a coin of Shivaji, glass-paintings, textiles, brass pots, pottery, arms and weapons of the Maratha period, wood carvings from Bansipuri Math and an iron lamp. The Museum is being organized before it is thrown open to the public.

40. ARCHAEOLOGICAL MUSEUM, SARNATH.—Renovation and improvements, by painting the walls and wooden pedestals, rearranging minor antiquities in wall show cases and providing bilingual labels in Hindi and English on the pedestals, were completed. Security-measures were tightened up and electricity was provided at various points in and around the Museum building.

41. ARCHAEOLOGICAL MUSEUM, UNIVERSITY OF SAUGAR, SAGAR.—Plans are afoot for opening a University Museum here for which collections were made of sculptures from Gurgi and other places. Other important acquisitions during the year include: three Brahmanical sculptures of the early medieval period; nineteen terracotta figurines from Ahichchhatra and Kausambi; one copper Kushan head of a male figure from Sravasti; and a few Rajasthani cloth paintings depicting *Krishna-lila* scenes. To the coin-cabinet were added twenty-two copper coins from Kausambi, twenty-seven inscribed coins from Ahichchhatra, one Satavahana and ten inscribed Naga and eight Yaudheya coins.

42. NEW BHOPAL MUSEUM, SEHORE.—The new building for the Museum was nearly completed. It houses antiquities from the collection of the erstwhile Bhopal State.

43. STATE MUSEUM, SRINAGAR.—The textiles were attractively displayed and some of the exhibits were provided with descriptive labels.

44. ARCHAEOLOGICAL MUSEUM, TRICHUR.—The collections were rearranged with alcove-partitions for each section and dioramic display was extended to the sculpture section. Punch-marked coins discovered with Roman coins at Eyyal in District Trichur were exhibited along with the local coins in a table show-case having proper background and lighting. Burial jars and pottery from caves and ancient sites were also exhibited with suitable background and bilingual labels. A separate section has been devoted for the relics of the Megalithic Culture.

45. PRATAP MUSEUM, UDAIPUR.—The Victoria Hall Museum, proposed to be renamed Pratap Museum and shifted to the Hisab-i-Daftar portion of the Udaipur palaces, maintained steady progress. The wall-cases for the paintings were remodelled and pedestals and stands were provided for the sculptures and epigraphs. The new Museum will be ready for public view in 1968.

46. UNIVERSITY MUSEUM, UJJAIN.—Sculptures were collected for the Museum by the Department of History and Culture, Vikram University, which has already a Museum at the Mahakaleswar Temple.

47. BHARAT KALA BHAVAN, VARANASI.—The Kala Bhavan acquired fifty-five coins including punch-marked and Mughal ones, stone sculptures of the Kushan period from Mathura, terracotta figurines of unknown provenance and two clay sealings with Brahmi characters.

VII. ARCHITECTURAL SURVEY OF TEMPLES

1. NORTHERN REGION.—The Northern Region of the Temple-Survey Project of the Survey, under Dr. S. C. Ray, studied the caves at Udayagiri (District Vidisha) and Bagh (District Dhar) for a comparative study of architectural features of the Gupta period.

2. SOUTHERN REGION.—The Southern Region of the Temple-Survey Project, under Shri K. V. Soundara Rajan, apart from finalizing reports of the work done in previous years, studied one hundred and forty monuments. The survey was primarily concentrated on the temples in the area, in Districts Mahbubnagar and Kurnool of Andhra Pradesh, which is going to be submerged under the 'Srisailam Project'. Among the sites visited as many as twenty-two present interesting temples.

This area, falling in the valleys of the Krishna, the Tungabhadra and the Bhavanasi, has proved to be important for the study of temple-architecture. The temple - groups reveal not only new facts of the already-known Chalukyan style of architecture, but also new dimensions of regional styles not hitherto identified. They represent regional modifications of the Karnata style of architecture under the Chalukyas in this contact-zone between its western and eastern wings. In fact, the bulk of the temples here forms a compact sub-group, to be designated as the *Kadamba-Nagara* type (or the *Pidha-deul* type), being local manifestations of the *Rekha-Nagara.* This zonal sub-style was the result of the fusion of the *Rekha-Nagara* and the *Vimana* types, respectively forming the diagnostic models of the western and eastern lower Deccan. The most important of these temples are at: Chinhamarur, Marmunagala, Pragatur, Beccam, Manchalagatta, Jetpol, Kudavalli (Upper Sangameswaram), Lower Sangameswaram, Malleswaram, Somasil, all on the Krishna; Alampur and Gondimalla and their neighbourhood on the Tungabhadra; and Pratakota, Mutsumarri, Siddharajulinga-puram and Musalimadugu on the Bhavanasi. It is specially to be noted that the age of development covers both the pre-medieval as well as the medieval periods. The sculptural wealth from the area is no less impressive, though restricted mainly to some centres like Kudavalli, Lower Sangameswaram, Pratakota, etc. Interesting inscriptions have also been noticed, as for instance, the one on a pillar at Musalimadugu, perhaps of the twelfth century A.D.; the epigraph is inscribed in three languages—Sanskrit, Tamil and Telugu, the Nagari script being used for the first and the last.

Other notable surveys were made in widely-separated areas, in the Ganga, Muttaraiyar, Pandya, Chera, Pallava and Nolamba zones. A fresh study, of the Ganga temples at Sravanabelgola and Kambadahalli, reveals interesting stylistic traits of the southern *vimana,* which by the consistency with which they had been adopted over a wide area (comprising northern and southern Karnataka), almost- constitutes arche-types. In the southern Ganga country (Kongu), falling mostly within the limits of Tamilnad in District Coimbatore, important findings have been made at Vijayamangalam, Vellalur, Tiruchengodu and Erode. In all these places, two features of outstanding interest are noted: the octagonal *sikhara* has invariably been adopted in the earliest form; and the architecture has been, by and large, almost entirely of brick, to start with, and of mixed brick and stone in transition and of stone alone in its maturity, the last stage being reached generally by the early tenth century A.D., although the mixed use of stone and brick continued side by side. Undoubtedly, the oldest monu-

ment, entirely in brick, is the Mahimalesvara temple at Erode, datable to the late eighth or early ninth century AD. The architectural mode utilizes sparingly the Karnataka idiom but is primarily affiliated with the lower southern usage.

In the Pandyan country, a fairly detailed exploration of a number of places in the Tamraparni valley and in the interior revealed that here again the oldest temple presents the octagonal *sikhara* and *griva* and often enough is only an *ekatala* or *alpa-vimana,* and that, consistent with its primary affiliation with the western flank represented by the Chalukyas, Nolambas and the Gangas, the *linga-pitha* in the sanctum is usually square as opposed to the circular form used by the Pallavas, Cholas and the Muttaraiyars on the eastern flank of Tamilnad. It is also noted that in the Pandyan country many early experiments were made in the period, in mixed usage of material as well as in the model itself and, in one case, as at Vijaya Narayanam, a rare example of an *ekatala-vimana,* having even an *upapitha,* has been noticed. A unique evidence, however, is from Tiru-kurangudi where in the Alagiyanambiraja complex of multiple shrines, the oldest part is the monolithic *sikhara* piece (set, by a comparatively-modern refixation, on a simple renovated ground *tala)* on the Lakshminarayana temple which seemingly was the earliest temple here. Interestingly enough, at Tirukurangudi, where we have inscriptions of the early Pandyan kings of the ninth century A.D., there is a combination of Siva and Vishnu shrines in the same complex. Other outstanding temples of the early Pandyan style in this tract are noted at Sivalapperi (Tennalagar shrine), Gangaikondan (Kailasanatha temple) and Ambasamudram (Erichcha Udaiyar shrine); with octagonal *sikharas,* -they are not later than mid-late ninth century A.D. in age.

In the northern buffer zone between the territories of the Pallavas and the Pandyas, ruled by the Muttaraiyars, an outstanding early example is the *ashta-parivaralaya* of the Sundaresvara temple at Nangavaram, the unique characteristic of which would seem to be its all-stone structural style, circular *sikhara* in the best Muttaraiyar model and the apsidal form for the Ganesa shrine. The sculptural, architectural and even inscriptional evidence of this temple would lead to the conclusion that the temple is not later than the middle of the ninth century A.D., and would give a new meaning to the appreciation of the Chola and Muttaraiyar monuments elsewhere, as at Narthamalai, Keeranur, Kilathanayam, etc.

In the Pallava country, mention may be made of a very important and new addition to the list of 'Later Pallava' structural temples of the peripheral area, viz. Visales-vara temple at Ramakrishnamaharajapet, built of mixed mode of stone plinth and brick wall and superstructure, rising to a *tritala* stature and capped by an octagonal *griva* and *sikhara.* Apart from the inscriptions on its plinth and on the pillars of its *mahamandapa,* the temple has many unique features not hitherto known in the Pallava temples of Tondaimandalam, viz. an octagonal stone *linga-pitha* in the sanctum, a relief of Uma-sahita-Siva in a niche on the back wall, the disposition of the *ardhamandapa* in the form of a central nave and side aisles by longitudinal lintel scheme, and a complete and exquisite set of *Saptamatrikas* and other subsidiary deities, seemingly indicating that they had been enshrined originally in the *parivara*-complex around the main temple. The very style of the superstructure of the temple, in its virtuousity and *vimana-devatas,* would be an important and welcome addition to the Later Pallava temples of which the nearest one, known till now, is the Virattanesvara, Tiruttani, 16 km. away. The existence of this temple does not find any mention in any of the publications. The temple, by virtue of its inscriptions, sculpture and intrinsic architectural importance, would deserve to be studied in detail and would appear to be datable to the middle of the ninth century A.D. Its

additional value would lie in the unravelling of the later Pallava devolution in this part of the country, between the periods of Aparajita and Kampavarman. Another temple, though of lesser importance, is at Uttukkadu, near Walajabad. It is an *alpa-vimana* with stone ground *tala* and brick superstructure, carrying a *chaturasra-sikhara.* The temple was dedicated to Vishnu. Its inscriptions refer to Kampavarman.

In the course of the finalization of the field-study of the cave-temples of the Chera country, of which there are nine monuments, a visit was also made to Brantankal or Brantanpara, near Tiruvegapura, beyond Shoranur. This unfinished cave-temple, by its suggested characteristics of the facade, would seem to pertain to the style in vogue in the peripheral Tamil country.

The well-known remains of temples at Hemavati, the old capital city of the Nolam-bas have been studied, they show a characteristic regional garb, largely following certain Chalukya and Ganga elements on the one hand, and sharing some Vaidumba traits on the other. The temples here have two features: there are more than two types of super-structural models adopting variously the southern *vimana* and the *Kadamba-Nagara,* in addition to probably the *Rekha-Nagara* for the main shrine of Doddesvara; and the temples are almost invariably built of stone and brick. Their architecture, thus, forms a recognizable link between the Ganga-Chalukya building-techniques and the lower southern traditions. Of special interest is their Deccani type *dvaramandapa,* having a single-storey with raised side-sections mounted on dwarf pillars.

The ground-survey of all these areas, thus, revealed that the temple-architecture generally followed viable zonal variations of the regional mode among the three out-standing types of southern architecture viz., the *Rekha-Nagara,* the storeyed *vimana* and the *Kadamba-Nagara* forms. All these share certain common traits as, for instance, the presence or absence of *sukanasa* in preferred tracts: at least the first and the last of these shared a common growth for some time in the Upper Krishna valley, after which they diversified into two major forms, of which one continued to use the *sukanasa* (as in the later Chalukya, Hoysala, etc.) and the other completely shed it (as in the Tunga-bhadra-Krishna doab in the Chalukyan and Telugu Choda country), but both throughout adopted the *sikhara* of the southern *vimana* format.

VIII. PRESERVATION OF MONUMENTS

MONUMENTS OE NATIONAL IMPORTANCE

EASTERN CIRCLE

Assam

1. KARENGHAR PALACE, JAYASAGAR, DISTRICT SIBSAGAR.—In continuation of the earlier work, the missing portions of brickwork of the walls of the main hall and gateway to Prasuti-ghar were made good. Lime-concrete terracing over the vaulted roof was renewed to stop leakage of rain-water. Uprooting of trees and removal of debris from the cellars were also attended to.

Orissa

2. GROUP OF TEMPLES, BOUDH, DISTRICT BOUDH PHULBANI.—The missing parts of the basement were replaced with dressed stones, to support the overhanging pilasters. The facade-stones, which had bulged out and got disjointed due to ingress of moisture into the core, were dismantled and reset using copper cramps. Smaller cracks were sealed off with cement grout.

3. MONASTERY NO. 1, RATNAGIRI, DISTRICT CUTTACK.—The decayed and bulged-out brick walls of the cells were dismantled and reset using old bricks. The top of walls was made watertight. The work of resetting the uneven stone pavement of the courtyard to the original level was taken up. The repairs are in progress.

4. LINGARAJA TEMPLE, BHUBANESWAR, DISTRICT PURL—The open joints of the stone flooring inside the temple compound were filled up to prevent growth of vegetation and percolation of water.

5. MEGHESWAR TEMPLE, BHUBANESWAR, DISTRICT PURL—The work of relaying the uneven stone pavement on a concrete-bed and replacing the disintegrated stones with new pieces, which was taken up last year, was continued. It is in progress.

6. ASOKAN ROCK-EDICT, DHAULI, DISTRICT PURL—The small platform in front was extended by constructing dry-stone retaining-wall with necessary steps to get enough space to enable one to study the sculpture and the inscription.

7. SUN TEMPLE, KONARK, DISTRICT PURL—The work of filling up the open joints of the stones of the *Jagamohana* by cement-grouting and recessed pointing was taken up, to stop ingress of moisture into the core. The work is in progress.

West Bengal

8. MADAN-MOHAN TEMPLE, BISHNUPUR, DISTRICT, BANKURA.—A brick-paved pathway was laid out around the temple. The missing and decayed portions of the plinth of the *nata-mandir* were repaired with special-sized bricks and the tops of the broken walls of the *bhog-ghar* were also filled up with toned cement-grouting.

9. GROUP OF TEMPLES, KALNA, DISTRICT BURDWAN.—Vegetation-growth was cleared from the Nabakailasa temple. The roof of the temple was made watertight by relaying lime-concrete terracing, including rebuilding the missing portions of the roof. The floor of the Krishnachandraji's temple was relaid with a layer of fresh lime-concrete. The missing portions of the outer basement of the Ratnesvara temple was rebuilt with old bricks and the basement floor was relaid with lime-concrete. Plastering was done on the inside walls of the *bhog-ghar* of the Lalji's temple. The overhanging beam of the terraced-roof was supported by brickwork.

10. BAISGAZI-WALL, GOUR, DISTRICT MALDA.—The work of repairing the damaged brick wall and watertightening its top was taken up. The repairs are in progress.

11. DAKHIL-DARWAZA, GOUR, DISTRICT MALDA.—The decayed and salt-affected bricks on the north and south sides of the gateway were replaced with old bricks and the top made watertight with lime-concrete terracing.

12. TOMB AND MOSQUE OF MURSHID QULI KHAN, SABJIKATRA, DISTRICT MURSHIDABAD.—The portions of the outer brick wall, which were decayed and salt-affected, were repaired with special-sized bricks. The steps leading to the *minar* and the tomb-chamber of Murshid Quli Khan were also repaired. The uneven brick-pavement of the forecourt of the mosque was renewed with special-sized bricks, after filling up depressions with concrete in proper slope for easy drainage of rain water. The work is in progress.

13. TOMB AND MOSQUE OF 'ALIVARDI AND SIRAJU'D-DAULA, KHOSHBAGH, DISTRICT MURSHIDABAD.—The works of renewing decayed plaster, changing the worn-out rafters and eaves and repairing the roof with lime-concrete terracing were taken up. The repairs are in progress.

14. PALPARA TEMPLE, CHAKDAHA, DISTRICT NADIA.—A banyan tree, which had spread its roots deep in the roof and the walls, was uprooted. The damaged walls were repaired and the roof was made watertight with lime-concrete terracing.

15. KHANA-MIHIRER-DHIPI, BERACHAMPA, DISTRICT 24-PARGANAS.—The excavated walls of the *mandapa* in front of the main shrine, along with the inner walls of the shrine itself were rebuilt and their tops made watertight.

FRONTIER CIRCLE

Jammu and Kashmir

16. MUGHAL ARCADE, VERINAG, DISTRICT ANANTNAG.—In continuation of the previous year's work, the arches flanking the main vault along with those on the eastern side of the main spring were strengthened using specially prepared bricks of the original size.

17. GROUP OF TEMPLES, BABOR, DISTRICT UDHAMPUR.—In continuation of earlier work the bases of temples were repaired by restoring the missing stones and resetting the dislodged ones.

MID-EASTERN CIRCLE

Bihar

18. ANCIENT SITE OF VIKRAMSILA UNIVERSITY, ANTICHAK, DISTRICT BHAGALPUR.—Proper drainage was provided to the recently excavated Main Shrine and gateway-

complex which has suffered badly from exposure to weather. A general-surface clearance •of the site brought to light remnants of a very thick wall going round the whole area.

19. BUDDHIST STUPA, TAJPUR, DEUR (KESARIYA), DISTRICT CHAMPARAN.—Bar bed-wire fencing all round the extensive site, with an iron gate towards the main road, was provided.

20. EXCAVATED REMAINS OF STUPA, CHAKRAMDAS AND VAISHALI, DISTRICT MUZAFFARPUR.—Loose bricks of the walls of the *stupa* were reset. The shed, construc ted for protection of the *kuchcha* core of the *stupa* was repaired, the excavated area was provided with drainage.

21. SHER SHAH'S TOMB AND TANK, SASARAM, DISTRICT SHAHABAD.—In accordance with the recommendations of the High Power Committee for improvement of Sher Shah's tomb and its environs, all unauthorised constructions and encroachments were removed. In the main building, lime-concrete flooring was repaired, wire-netting was provided to the hexagonal apertures for preventing bat-menace; loose pavement-stones were reset, and the stepped approach was reconditioned. The monument and the tank were brought within a fencing for laying out a garden.

Uttar Pradesh

22. BUDDHIST REMAINS, KUSHINAGAR, DISTRICT DEORIA.—To prevent the rise of moisture and to protect the Buddha image from salt-action, works were taken up for laying out alkathene sheets at the bottom and sides of a cement-cencrete bed below the colossal image.

23. NIRVANA TEMPLE, KUSHINGAAR, DISTRICT DEORIA.—The leaky roof was made watertight by filling in the cracks. The interior of the temple was provided with suitable lighting arrangements.

24. DHARARA MOSQUE, VARANASI.—Old and decayed plaster from the exterior of of the mosque was removed and the domes replastered with lime mortar mixed with a water-proofing compound. The decayed concrete on the roof of the building was picked up and a layer of new lime-concrete was laid. The dismantling of the old concrete on the roof revealed that some time in the past the northern and southern minarets of the building had been fastened with an iron tie-rod to prevent an outward movement of the flanks. The grouting of the cracked roof was also taken up.

25. DHAMEKH-STUPA, SARNATH, DISTRICT VARANASI.—Repairs to this famous *stupa* with its brick-built nucleus attributable to Asoka, taken up a couple of years back, were brought to a completion (see cover). The overhanging portions of its brick-core at the top were given support by underpinning. The decayed and salt-affected bricks from the sides and top of the upper portion of the *stupa* were replaced by those specially prepared of the same old size in good mortar. Similarly the decayed ashler facing stones in the lower part were also replaced with new ones to make the entire exterior surface watertight.

26. EXCAVATED REMAINS, SARNATH, DISTRICT VARANASI.—The exposed tops of the walls of monasteries were made watertight. During the debris-clearance a beautiful stone slab depicting rows of Buddhas was exposed below a wall.

NORTHERN CIRCLE

Rajasthan

27. PALACES, DIG, DISTRICT BHARATPUR.—The portion of the compound wait near Hardeo-Bhavan, which had collapsed, was reconstructed as per the original. The pathways inside the palaces were reconditioned.

Uttar Pradesh

28. FORT, AGRA.—The decayed slabs of the flooring of the courtyard of the Moti-Masjid were replaced with new ones over a bed of lime concrete.

29. GHAZNI-GATE, FORT, AGRA.—The historic wooden gate, which had been badly affected by insects, was cleaned thoroughly. The missing portions of the floral designs on top and sides of the door-frame and a few missing star shaped designs on the door-leaves were renewed as per the original. While repairing the damaged portions of the gate, care was taken to restore the original members to their proper places.

30. TAJ-MAHAL, AGRA.—The sunken portion of the pavement in front of Mihman-Khana was raised to its original level and the decayed stone slabs were replaced with , new ones. The cells of the *dalans* attached to the Saheli-Burj were fitted with Mughal-pattern doors and the damaged floors of the cells were made good by laying a layer of fresh lime-concrete after scraping the decayed one.

31. AKBAR'S TOMB, SIKANDARA, AGRA.—The southern side of the compound wall (pl. XXXIII A), which had collapsed during a storm, was reconstructed in keeping with the original (pl. XXXIII B).

32. GARHWA FORT, SHANKARGARH, DISTRICT ALLAHABAD.—The openings in the cloisters inside the fort were provided with iron-grated doors for the safety of sculptures.

33. GROUP OF TEMPLES, JAGESHWAR, DISTRICT ALMORA.—The wooden accretions in the temple-compound were removed and the original features exposed. The leaking *mandapa*-roofs of the Jagesvara and Mrityunjaya temples were made watertight. The damaged stone pavement inside and around the Jagesvara temple was relaid with new stones.

34. MOSQUE OF MAKHDUM JAHANIA, KANAUJ, DISTRICT FARRUKHABAD.—-In continuation of earlier works, the fallen portion of the wall (pl. XXXIV A) on the western side was completely restored (pl. XXXIV B). The cracks in the roof were grouted with cement mortar.

35. PALACE, RANI LAKSHMIBAI, JHANSI.—In continuation of the previous year's repairs, the ornamental plaster-work was exposed to view after scraping the old colour wash. The entire length of the *chhajja* on the front facade was reconstructed. The missing moulded brackets, carved pillars and floral patterns on walls were renewed in plaster as per the original.

NORTH-WESTERN CIRCLE

Delhi

36. PURANA-QILA, DELHI.—Restoration of the fallen portion of the fortification wall (pl. XXXV A) at the south-west corner of the Purana-Qila was resumed in continuation of the earlier work (pl. XXXV B). The width of the wall being 5 to 5.50 m., bond-stones were inserted at intervals to provide additional strength to the restored portion of the masonry.

37. RED FORT, DELHI.—The eastern wall of the fort, which was full of moss and lichen and stains, was cleaned after pointing the joints with toned cement mortar.

Haryana

38. SHAIKH CHILLI'S TOMB, THANESWAR, DISTRICT KARNAL.—The breach in the south-west corner of the tomb was closed and the cells on the eastern and southern sides were plastered after filling the holes and crevices.

Himachal Pradesh

39. LAKSHMI-NARAIN TEMPLE, CHAMBA.—The *kalasa* of the temple, which had fallen down, was fixed in position after polishing it with bronze powder. The deteriorated wooden *chhatris* above the *sikharas* of the temples of Lakshmi-Damodara, Gauri-Sankara, Chandragupta-Mahadeva and Bhutesvara were replaced.

Punjab

40. BHATINDA FORT, BHATINDA.—Reconstruction of the fallen portion of the outer fortification-wall (pl. XXXVIA) on the east was done to a height of 10 m. Similar work on the bastion at the south-east corner of the fort was taken up (pl. XXXVI B).

Rajasthan

41. PUNDARIKJI-KI-HAVELI, JAIPUR.—The leaky terrace of the hall, which has paintings on the ceiling, was rendered watertight. The parapet walls and *chhajjas* were repaired and the outer walls of the Haveli plastered. A compound-wall was erected to securely enclose the protected portion of the monument.

SOUTHERN CIRCLE

Madras

42. SHORE TEMPLE, MAHABALIPURAM, DISTRICT CHINGLEPUT.—The eroded con-crete foundation and base portion of the protective groyne wall of the temple were reconstructed.

43. BLOCK NO. XXXVI 1 TO 4 OLD OFFICER'S MESS, MADRAS.—The leaky terrace was watertightened. The damaged water-spouts were replaced. The tiled lean-to-roof was repaired and made watertight and the damaged teak-wood joists were renovated.

44. CLIVE'S BUILDING, MADRAS.—The damaged skylights were repaired. The wooden sunshades which were damaged due to heavy winds were also repaired. The dis integrated false wooden ceiling of the Library-hall was replaced with a neat ceiling of Thermocole.

45. SCHWARTZ CHURCH, THANJAVUR.—The enclosure wall, which had fallen down due to heavy rains, was rebuilt.

46. SIVANGANGA LITTLE FORT, THANJAVUR.—The fallen bastion (pl. XXXVIII A) of the fort wall was reconstructed (pl. XXXVIII B) to prevent further damage to the fort.

47. SRIERUMBESWARA TEMPLE, TIRUVERUMBUR,DISTRICT TIRUCHCHIRAPPALLI.—The damaged masonry platform (pl. XXXVII A), which forms the top-landing in front of the entrance to the temple, on the top of the hill, was reconstructed following original clues of construction (pl. XXXVII B).

Mysore

48. TIPU SULTAN'S PALACE, BANGALORE.—The roofing over the western wing and the north-eastern aisle was repaired and rendered watertight. The decayed wooden beams were cleaned and strengthened. The damaged ceiling of the raised skylight, in the centre of the audience hall, was supported with an additional teak-wood beam and upright supports. The missing water-spouts were restored as per the original pattern on the eastern side of the roofing.

49. DARIYA-DAULAT-BAGH, SRIRANGAPATNA, DISTRICT MANDYA.—The central terraced roofing was completely watertightened.

50. LAKSHMINARASIMHASWAMI TEMPLE, MAREHALLI, DISTRICT MANDYA.—The damaged parts of the roofing on the side-wings of the main *mandapa* and in the front were made watertight by laying brick-jelly concrete covered with flat tiles and finishing the top with plaster. Repairs to the parapet-wall were also carried out.

51. KEDARESWARA TEMPLE, NAGALAPURA, DISTRICT TUMKUR.—A large door was provided to the temple, following the old design.

Kerala

52. MATTANCHERRY PALACE, COCHIN, DISTRICT ERNAKULAM.—The wooden ceiling of the ground floor, which had got detached from the back, was provided with a support. The arches were provided with reinforced cement-concrete lintels so as to prevent further damage.

53. ST. FRANCIS CHURCH, COCHIN, DISTRICT ERNAKULAM.—The wing of the belfry that had fallen down due to heavy rains was reconstructed in accordance with the original design.

SOUTH-EASTERN CIRCLE

Andhra Pradesh

54. HILL FORT, GOOTY, DISTRICT ANANTAPUR.—The damaged ancient supply-channel on the slopes of the hill was repaired with huge cyclopean masonry.

55. RECONSTRUCTED MONUMENTS, NAGARJUNAKONDA, DISTRICT GUNTUR.—The reconstructed monuments were provided with a barbed-wire fencing.

56. CHARMINAR, HYDERABAD.—Barriers of expanded-metal frame were provided to the openings to prevent fall of unwary visitors.

57. DIBBESWARASWAMY TEMPLE, SARAPALLI, DISTRICT VISAKHAPATNAM.—A compound-wall was provided around the temple.

SOUTH-WESTERN CIRCLE

Maharashtra

58. ROCK-CUT CAVES, AURANGABAD.—The old masonry pillars were replaced with those of reinforced cement-concrete. The missing or damaged portions of pillars, pilasters, ceiling and walls of Cave 6 were repaired and reconditioned. Railings were also provided along the steps leading to the entrance for easy climbing. Similar works were executed at Caves 7 and 9.

59. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—The pathway in front of Caves 5 to 7 was concreted in order to minimize the nuisance of dust which also causes damage to the paintings inside the caves.

60. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—The irregular projection of the roof between Caves 5 and 7, which allowed drainage water from the hill-top to fall at the entrance and then to flow inside the cave, was provided with a cantilever in reinforced cement-concrete in order to direct water away from the entrance.

Mysore

61. GOL-GUMBAD, BIJAPUR.—In the *Nagar-Khana* of the Gol-Gumbad, where a museum is housed, floors of rooms were repaired and walls plastered.

62. GROUP OF MONUMENTS, AIHOLE, DISTRICT BIJAPUR.—The encroachments of modern houses on the land around the groups of temples were dismantled to expose a complete view of the temples and to develop the areas around them in a proper manner.

63. GROUP OF MONUMENTS, PATADKAL, DISTRICT BIJAPUR.—The work of clearing modern constructions near the monuments was initiated.

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WESTERN CIRCLE

Gujarat

64. EXCAVATED REMAINS, LOTHAL, DISTRICT AHMADABAD.—In continuation of the earlier work, the peripheral platform of the granary was suitably raised in soil-cement bricks matching the original mud-bricks.

65. DWARKADHISH TEMPLE, DWARKA, DISTRICT JAMNAGAR.—Preservation of this temple started with repairs to the *sabha-mandapa.* The thick cement plaster on the outer surface of the architectural members in the north-western and south-western sides, was completely removed, exposing the original architectural features as also the worn-out condition of the pillars which need replacement. On the outer face of the plinth of the *garbha-griha,* the decayed red sandstone slabs, used in earlier repairs, were replaced with new pieces.

66. DURVASARISHI'S ASHRAM, PINDARA, DISTRICT JAMNAGAR.—In Temple No. 3, the portion, which was out of plumb and had loose stones, was dismantled and reset. The worn-out lintel and pillar-stones were replaced with new ones. The wide joints in masonry were pointed.

67. GALATESHWAR-MAHADEVA TEMPLE, SARNEL, DISTRICT KAIRA.—A pipe line for drainage of water from the *garbha-griha* was laid. The work of repairing the stone apron around the temple was also taken up.

68. SUN TEMPLE, MODHERA, DISTRICT MEHSANA.—On the southern and western sides of the temple stone slabs were laid over a cushion of lime-concrete, to serve as an apron.

69. SHAIKH FARID'S TOMB, PATAN, DISTRICT MEHSANA.—AS a preventive measure against floods of the nearby river, heavy boulders were provided around the north-eastern bastion.

Rajasthan

70. KHATAN-VAV FORT, CHITORGARH.—The masonry walls, which had gone out of plumb, were dismantled and reset.

MONUMENTS MAINTAINED BY STATES

ANDHRA PRADESH The

following monuments were attended to:

1. SOMESWARASWAMY TEMPLE, KULPAK, DISTRICT NALGONDA
2. MOSQUE, ELGANDAL FORT, DISTRICT KARIMNAGAR
3. HAKIM'S TOMB, HAKEEMPET, HYDERABAD
4. SULTAN-SHAHI MONUMENT, HYDERABAD
5. SHAMSHEERKOTA MONUMENT, HYDERABAD

ASSAM

6. CHATRAKAR TEMPLE, GAUHATI, DISTRICT KAMRUP.—With further repairs to the *adhisthana* and the *jangha,* works on this monument were completed.

7. AB-I-HAYAT ARABIC INSCRIPTION, KAMAKHYA, DISTRICT KAMRUP.—The area around the inscription was fenced off and a path leading to it was laid.

8. UMACHAL ROCK INSCRIPTION, KAMAKHYA, DISTRICT KAMRUP.—A dwarf retaining-wall and drains were constructed near the inscription to prevent erosion and divert the rain-water flowing towards it.

9. KANAI BOROSI ROCK INSCRIPTION, NORTH GAUHATI, DISTRICT KAMRUP.—A retaining-wall was constructed below the rock bearing the inscription, to prevent erosion caused by river-flood. Drains were also constructed to divert rain-water.

10. CHANDRASEKHARA TEMPLE, UMANANDA, DISTRICT KAMRUP.—The *sikhara,* the upper part of *the jangha* and the *garbha-griha* were repaired.

11. RAIDONGIA, DISTRICT LAKHIMPUR.—The *sikhara,* which was threatening to topple down, was repaired. Besides, vegetation was cleared from the body of the temple.

12. GALLOWS SITE OF PIYALI PHUKAN, SIBSAGAR, DISTRICT SIBSAGAR.—The area was enclosed by a fencing and a garden set up.

GUJARAT

Repairs were executed to the following monuments:

13. AMRITVARSHINI-VAV, AHMADABAD
14. KADIYA-DUNGAR CAVES, ZANZPORE, DISTRICT BROACH
15. NAVALAKHA TEMPLE, GHUMLI, DISTRICT JAMNAGAR
16. SARTANJI-NO-CHORE, PORBANDAR, DISTRICT JUNAGADH
17. SURYA TEMPLE, PRABHAS PATAN, DISTRICT JUNAGADH
18. GROUP OF MONUMENTS, NARODA FOREST, DISTRICT PANCHMAHAL
19. JAIN TEMPLES, ABHAPUR, DISTRICT SABARKANTHA
20. SARNESHWAR TEMPLE, ABHAPUR, DISTRICT SABARKANTHA
21. SADEVANT SAVLINGA, ANTERSUBA, DISTRICT SABARKANTHA

MADHYA PRADESH

The following monuments were attended to:

22. ADHAR-GUMBAJ, MANDU, DISTRICT DHAR
23. RANI LAKSHMIBAI'S CHHATRI, GWALIOR
24. OLD PALACE, ISLAMNAGAR, DISTRICT SEHORE

25. CHAUBIS-KHAMBA GATE, UJJAIN

MADRAS

26. GANGAIKONDA CHOLISVARAM TEMPLE, KUZHAMBANDAL, DISTRICT CHINGLE-PUT.—The work on the resetting of damaged *vimana* was commenced after the removal of the vegetation. Fallen stones of the structure were placed together.

27. RUDRAPATI TEMPLE, KILAKKAMBUR, DISTRICT SOUTH ARCOT.—Vegetation was cleared from the structure and a fencing was provided around it.

28. TOMBS OF BRITISH SOLDIERS, PANCHALAMKURUCHI, DISTRICT TIRUNELVELI.—The fallen compound wall was restored, deep crevices on the tombs grouted and epitaph-stones reset.

29. VELAVUDHAMPALAIYAM, PUGALAR, DISTRICT TIRUCHCHIRAPPALLI.—Barbed-wire fencing with controlled exit and masonry steps was provided. Inscriptions on the monument, exposed to the sun, were, coated with synthetic transparent resin.

ORISSA

30. SHAHI MOSQUE, BRABATI FORT, CUTTACK.— The items of work taken up earlier, viz. fitting doors and windows, concreting the roof, repairing the flooring and plastering and white-washing the walls, were completed.

31. OLD FORT, GANJAM.— Vegetation and heaps of debris were removed from various parts of the monument. Of the old arsenal within the fort, the floor was repaired and front wall plastered; doors and windows were fitted and the structure was whitewashed.

32. BUDDHANATH TEMPLE, GREDIPANCHAN, DISTRICT PURI— The clearance of debris within the compound of the temple was completed.

33. CHANDI TEMPLE, KENDULI, DISTRICT PURI— The conservation of the monument consisted of the reconstruction of the entrance and walls of the *jagamohana,* besides the renovation of the door-frame of the *garbha-griha.*

RAJASTHAN

The following monuments were attended to:

34. AMBER PALACES, JAIPUR

35. OBSERVATORY, JAIPUR

36. DLLARAM GARDENS, AMBER, DISTRICT JAIPUR

37. PALACES AT MANDORE, DISTRICT JODHPUR

UTTAR PRADESH

The following monuments were attended to:

38. SAMADHI OF SAINT KABIRDAS, MAGHAR, DISTRICT BASTI
39. BALMIKI-ASHRAM, BITHUR, DISTRICT KANPUR
40. SAMADHI OF BHARTRIHARI, CHUNAR FORT, DISTRICT MIRZAPUR
41. BATTIS-KHAMBA, VARANASI.

IX. ARCHAEOLOGICAL CHEMISTRY

TREATMENT OF MONUMENTS AND PAINTINGS

DELHI

1. RED FORT, DELHI.—Chemical treatment of the paintings on the walls of the Rang-Mahal, involving removal of moss, ochre, bees wax and varnish and consolidation of cracked paint-layers, was completed. The painted cloth on the ceiling of Diwan-i-Khas, which got separated from the wooden support at the back, was fixed up and accretionary deposits of insect nests, cobwebs, mud and smoke were cleaned. The colouring matters contained in the mud-and water-marks could not be removed completely due to their deep permeation in the paint-layers.

MADRAS

2. VENKATARAMAN TEMPLE, GINGEE, DISTRICT SOUTH ARCOT.—-The carvings on the walls of the main *gopuram,* which were covered with encrustations of the vegetational growth, were cleared and suitable preservative applied on them.

3. TALAGIRISVARA TEMPLE, PANAMALAI, DISTRICT SOUTH ARCOT.—The details of paintings so far indistinct were brought out by cleaning the accretionary deposits.

4. FIVE RATHAS, MAHABALIPURAM, DISTRICT CHINGLEPUT.—The work of removing soluble salt from the rock-cut shrines by the application of paper-pulp was taken up.

MADHYA PRADESH

5. VISVANATHA TEMPLE, KHAJURAHO, DISTRICT CHHATARPUR.—The work of eradication of vegetational growth like moss, lichen, algae, etc. from the surfaces of the sculptures and carvings was continued. Besides, experiments to remove lime-wash with milder acids were also carried out.

6. SMALLER SAS-BAHU TEMPLES, GWALIOR FORT, DISTRICT GWALIOR.—The stone surface of the temple, which was covered with a coat of lime-wash and encrustations of black moss, was cleaned and freed from soluble salts. Flaking portions were also consolidated.

MAHARASHTRA

7. ROCK-CUT CAVES, AJANTA, DISTRICT AURANGABAD.—Filleting of loose paint-films and broken edges of plaster was continued.

8. BIBI-KA-MAQBARA, AURANGABAD.—The marble *jali* around the grave proper was taken up for cleaning. The work is in progress.

9. ROCK-CUT CAVES, ELLORA, DISTRICT AURANGABAD.—The work of filleting the broken edges of plaster and paint-films was continued.

MYSORE

10. CHENNAKESAVA TEMPLE, BELUR, DISTRICT HASSAN.—The carvings on the ceiling of the *mukha-mandapa* of the temple was cleaned of extraneous deposits.

ORISSA

11. BAITAL-DEUL, BHUBANESWAR, DISTRICT PURI.—Removal of vegetation growth, lime-wash and soot, started earlier, was completed.

12. SUN TEMPLE, KONARK, DISTRICT PURI.—In continuation of previous year's works, soluble salt and vegetation were removed from the surface of sculptures, carvings, etc. The cleaned surface was treated with fungicides. In addition to the cleaning work, experiments were also conducted with ochre suspensions of various tints for use on different shades of stones.

PUNJAB

13. TOMB OF PUPIL MUSICIAN, NAKODAR, DISTRICT JULLUNDUR.—The moss on the paintings was successfully removed after several trials. The cracked paint-layers were strengthened and consolidated.

RAJASTHAN

14. PALACE, AMBER, DISTRICT JAIPUR.—Paintings of floral designs on the lower portion of the walls of the Bhojan Shala were cleaned and preserved.[1]

UTTAR PRADESH

15. GOPESVARA TEMPLE, DISTRICT CHAMOLI.—The outer face of the temple was cleaned of lime-wash, vegetational growth like moss, lichen, algae, etc., and treated with a fungicidal chemical. The treated surface was finally preserved with a coat of resinous solution.

16. RANI LAKSHMIBAI'S PALACE, JHANSI.—Chemical treatment of the paintings (pl. XXXIX) on the walls of the Rani's retiring room was continued. A large portion of the paint layer, which was flaking, was refixed and consolidated. The varnish over the paintings, occurring in a limited area, however, could not be made to respond to any reagent.

WEST BENGAL

17. JOR BANGLA TEMPLE, VISHNUPUR, DISTRICT BANKURA.—The ornate terracotta plaques on the exterior surface of the temple, which were covered with extraneous de posits, were cleaned and the friable portions were strengthened and consolidated (pls. XL A and B.)

1 Information from Director of Archaeology and Museums, Government of Rajasthan.

TREATMENT OF EXCAVATED OBJECTS AND MUSEUM EXHIBITS

In addition to twenty-seven thousand three hundred and fifty copper coins found at Hauz Khas, New Delhi, three hundred and twelve iron and silver objects were given chemical treatment and preserved. Also an oil painting from Bijapur was subjected to elaborate chemical treatment and preserved.

The marble sculpture of Lord Cornwallis with its decorative pedestal in the Fort St. George Museum at Madras was cleaned. Also in the same museum, the portrait of Lord Wellington and another painting on canvas, which were in a bad condition, were cleaned. Altogether two hundred sculptures in the site museum at Konark were treated for removal of vegetational growth, soluble salt, oil, etc. Similarly, seventy-three stone images in the site museum at Sarnath were treated.

In the laboratory of Chandradhari Museum at Darbhanga two hundred coins of copper, gold and silver, thirty-two objects of various description and a few stone images were treated.

Ninety-one antiquities obtained from the excavation at Noh, fifty sculptures of stone and six hundred and thirty-seven coins of copper and silver were treated and preserved in the laboratory of the Department of Archaeology, Government of Rajasthan.[1]

ANALYSES AND RESEARCH

1. GEOCHRONOLOGICAL STUDIES.—In addition to carrying out geochronological investigations at various excavated sites, especially at Kuchai, Ahichchhatra, Hastinapur and Bargaon, soil-samples from Paiyampalli, Mahabalipuram and Adamgarh were subjected to mechanical analysis, heavy mineral analysis and microscopic examination.

2. CHEMICAL ANALYSES.—Detailed laboratory tests and chemical analysis were carried out on a large number of specimens of metal, pottery, plaster, etc., obtained from various excavated sites. The composition and technique of manufacture of the Painted Grey Ware, obtained from different sites, were studied. Likewise, the composition of plaster and pigments of paintings from Ajanta and Ellora was examined. Besides, rock-shelters in Mirzapur were examined in connection with a study of the technique of Indian rock-paintings.

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1 Information from Director of Archaeology and Museums, Government of Rajasthan.

X. ARCHAEOLOGICAL GARDENS[1]

BIHAR

1. EXCAVATED REMAINS, NALANDA, DISTRICT PATNA.—Realignment of annual beds and plantation of groups of Bougainvilleas gave an effect of better display and improved the appearance of the site in general.

2. SHER SHAH'S TOMB, SASARAM, DISTRICT SHAHABAD.—The area around the monument of Sher Shah's tomb was fenced off and pipe-lines were laid and horticultural operations were initiated for laying out a garden comprising lawns, hedges, flower beds shrubberies and trees. The work is in progress.

GOA

3. VELHA GOA.—In spite of acute water-shortage and other adverse conditions, the garden was maintained in a presentable condition.

KERALA

'4. MISCELLANEOUS GARDENS.—The gardens in the monuments like Krishna-puram, Padmanabhapuram and Kottapuram continued to be maintained with the addition of a new plantation of cocoanut palms.

MAHARASHTRA

5. SHANWARWADA, POONA.—Many new plants were introduced in the garden and all the shrubberies were reconditioned.

MYSORE

6. ALI II RAUZA, BIJAPUR.—The lower terrace and the rear plots were continued to be utilized for raising crops under the 'Grow More Food' .campaign. An electric motor was installed in place of the existing oil engine to augment water-supply.

7. GAGAN-MAHAL, BIJAPUR.—Additional area was developed and the garden made more presentable.

8. GOL-GUMBAD, BIJAPUR.—A small area was further utilized for growing Mexican wheat as a part of the 'Grow More Food' campaign.

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1 Information from: 4, the Director of Archaeology, Kerala State; 14, the Department of Cultural Affairs, Orissa; and the rest from the Chief Horticulturist of the Survey.

9. IBRAHIM-RAUZA, BIJAPUR.—The irrigation system was considerably improved by replacing the old engine with an electric motor.

10. JOD-GUMBAD, BIJAPUR.—The old oil engine was replaced with an electric pumping set to augment water-supply in the garden.

11. SIKANDAR SHAH'S TOMB, BIJAPUR.—The oil engine was replaced with a suitable electric pumping set to augment water supply in the garden.

12. HOYSALESWARA TEMPLE, HALEBID, DISTRICT HASSAN.—Plantation of shrubberies and dot plants was completed.

13. DARIYA-DAULAT-BAGH, SRIRANGAPATANA, DISTRICT MANDYA.—Ornamental plants were raised in the nursery and utilized for planting in other gardens.

ORISSA

14. LAKSHMANESWAR TEMPLE, BHUBANESWAR.—The construction of a compound wall enclosing the garden around the temple was completed and pipe-lines were fitted for regular supply of water.

UTTAR PRADESH

15. FORT, AGRA.—A row of *Kaner* was planted on either side of the main road leading to the Moti-Masjid to enliven the surroundings.

In the land outside the Amar Singh's Gate at Agra fort plantation of wheat was continued in pursuance of the 'Grow More Food' campaign.

16. AKBAR'S TOMB, SIKANDARA, AGRA.—Besides maintaining the gardens, wheat and pulses were cultivated in connexion with the 'Grow More Food' campaign.

17. IDGAH, AGRA.—The entire shrubbery was rejuvenated by planting flowering varieties of pomegranate.

18. KHAN-I-ALAM NURSERY, AGRA.—Sale of plants was started at this nursery and the stock of different varieties of plants was raised. Nearly two hundred varieties of rose were budded in the nursery. New varieties of rose and other decorative plants were also introduced in the nursery to enrich the collection.

19. TAJ-MAHAL, AGRA.—The whole garden was kept in a very presentable condition, casualties of ornamental plants, shrubs, etc., were replaced suitably. The lawn in front of the glass-house was returfed.

20. GROUP OF MONUMENTS, FATEHPUR SIKRI, DISTRICT AGRA.—The waste land of Karwan-Sarai was planted with pomegranate. The lawn in front of Shafakhana was planted with groups of bougainvillea beds.

21. RESIDENCY BUILDINGS, LUCKNOW.—Plants were put on sale here. A rosary was laid out in the garden to meet the constant demand for rose plants. Propagation of ornamental plants also was carried out.

XI. PUBLICATIONS

PUBLICATIONS OF THE SURVEY

1. ANCIENT INDIA.—Numbers 20 and 21 were published.

2. INDIAN ARCHAEOLOGY - A REVIEW.—The number for 1963-64 was printed off, that for 1964-65 is in the press.

3. ANNUAL REPORT ON INDIAN EPIGRAPHY.—The Reports for the years 1962-63 and 1963-64 were released.

4. EPIGRAPHIA INDICA.—The following parts were published: part vii of Volume XXXVI and parts i and ii of Volume XXXVII.

5. MEMOIRS OF THE ARCHAEOLOGICAL SURVEY OF INDIA.— *Telkupi* by D. Mitra is in the press.

6. GUIDE BOOKS.—The second edition of *Khajuraho* by K. Deva and *Dig* by M. C. Joshi were brought out.

7. AJANTA MURALS.—An album, with eighty-five reproductions in colour and texts by A. Ghosh, Ingrid Aall, M.N. Deshpande and (Dr.) B.B. Lai, was released.

8. PICTURE POST-CARDS.—The sets of Ellora, Ajanta, Nagarjunakonda,. Mahabalipuram, Goa and Chitorgarh were reprinted. Two new sets, Gaur and Pandua and Golconda and Hyderabad, were also released.

9. FOLDERS.—Two folders on Khajuraho, one in English and the other in Hindi were published.

OTHER PUBLICATIONS

ANDHRA PRADESH.—The Department of Archaeology and Museums, Andhra Pradesh, published: (i) the *Medieval History of Deccan,* Vol. II, by S. K. Sinha; (ii) *An Early Brahmi Inscription from Guntupalli* by R. Subrahmanyam; and (iii) the *Siddhodvaha* by P.V.P. Sastry. While the printing of the *Annual Report on Epigraphy for the year 1965* is nearing completion, a volume containing the texts of all the inscriptions copied in District Warangal is ready for the press.

BIHAR.—The Chandradhari Museum, Darbhanga, Bihar, has undertaken the publication of a catalogue of select sculptures and other archaeological antiquities of the Museum.

DELHI.—The National Museum, New Delhi, brought out (i) *South Indian Bronzes* by C. Sivaramamurti; (ii) *Paintings of the Chaurapanchasika* by (Smt.) Lila Shiveshwar-kar; and *(iii) Pre-Columbian Art* by Dr. Grace Morley.

JAMMU AND KASHMIR.—The Directorate of Libraries and Archives, Jammu and

Kashmir, has taken up the preparation of: (i) Album of select sculptural remains of the State; (ii) Kashmir Bronzes; (iii) Baoli sculptures of Jammu; (iv) Scripts of the Jammu and Kashmir State; and (v) Archaeological remnants of Kashmir.

KERALA.— The Directorate of Archaeology, Kerala, brought out the *Coins from Kerala* and the *Indian Archaeology— A Review* in Malayalam. While illustrated *Guide to Murals* with special reference to Padmanabhapuram and *Guide to Padmana-bhapuram* are in the press, a Guide to Archaeological Museum and Picture Gallery is under preparation. The revised editions of the *Kerala Archaeological Series* are also under preparation.

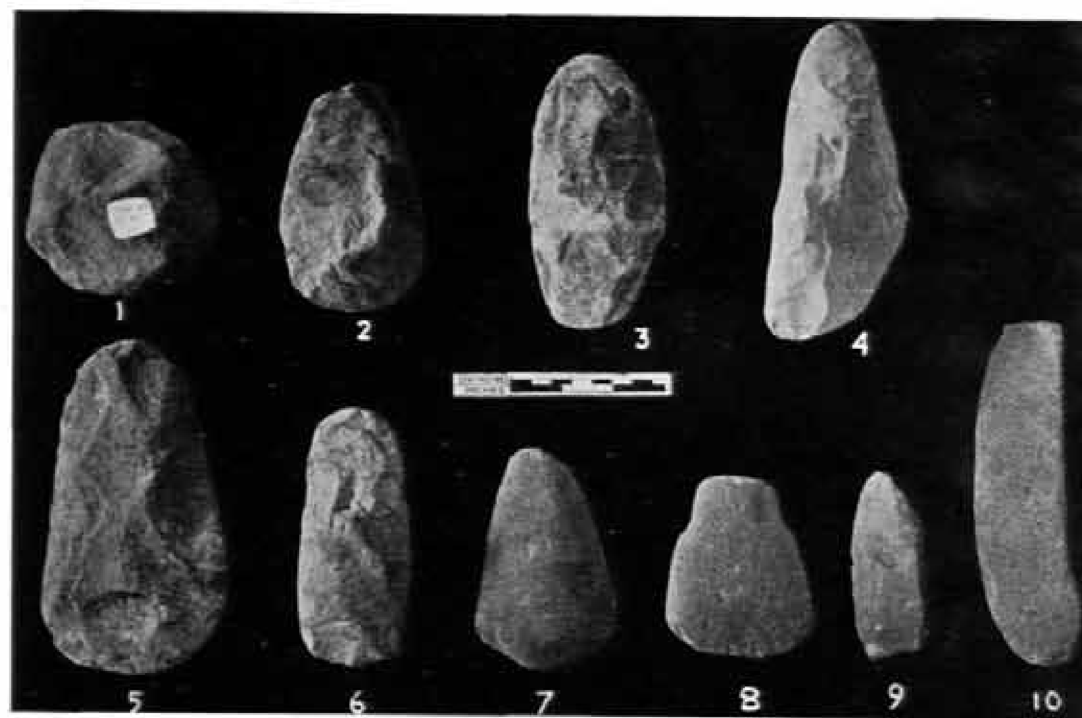
MADRAS.— The Department of Archaeology, Madras, apart from bringing out a handbook with one hundred illustrations of south Indian art and architecture, published, in the form of a book, papers contributed to the Seminar of Inscriptions organized in October, 1966.

MAHARASHTRA.— The Department of Archives and Archaeology, Maharashtra published: (i) *Excavations at Kaundinyapura* by M. G. Dikshit; and (ii) *Catalogue of coins of the Mughal Emperors* by M. K. Hussain.

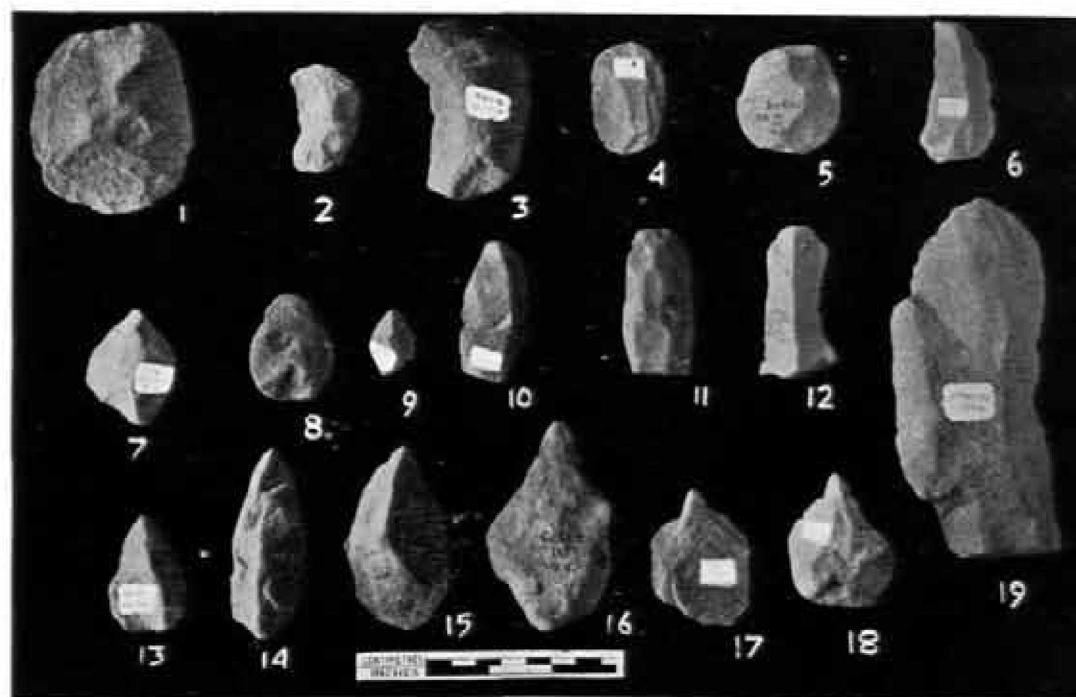
ORISSA.— The Orissa State Museum produced the *Orissa Historical Research Journal,* XII, nos. 3 & 4. The Fourth Volume of the *Inscriptions of Orissa,* to be published by the Director, Cultural Affairs, Orissa, is under print.

UTTAR PRADESH.—The first issue of a half-yearly journal, entitled the *Bulletin of Museums and Archaeology in U. P.* was published by the Department of Cultural Affairs and Scientific Research, Uttar Pradesh, which has also undertaken the publication of : (i) Catalogue of Gandhara Sculptures in Mathura Museum, (ii) Catalogue of Vishnu images in Mathura Museum, (iii) Museum Glossary; and (iv) Photographic Index of Mathura antiquities in the museums of India and abroad.

WEST BENGAL.— *Pragaitihasik Susunia,* a book in Bengali by P. C. Das Gupta, was published by the Directorate of Archaeology, West Bengal.



A

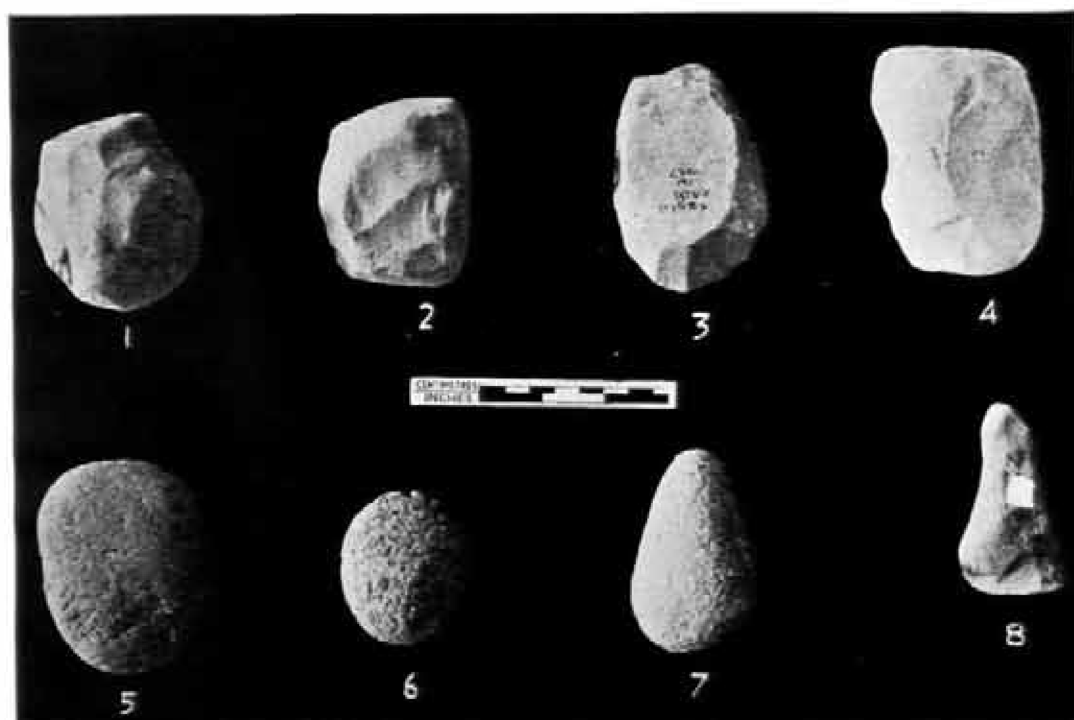


B

Selbalgiri : A, *handaxes, discs and picks;* B, *blades and flakes.* *See p. 7*



A



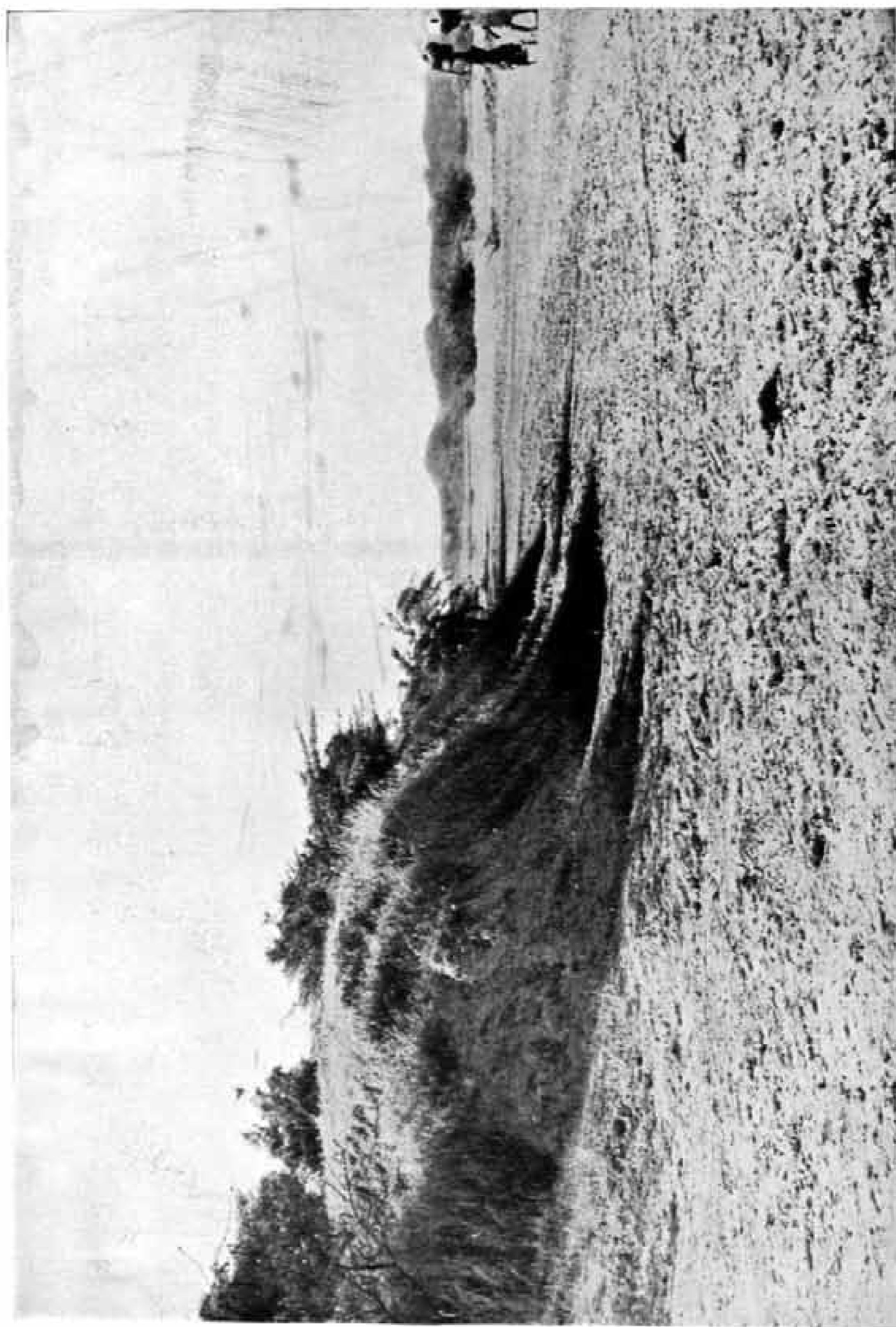
B

Selbalgiri : A, *microliths;* B, *cores, hammers and fabricators.* *See p. 8*

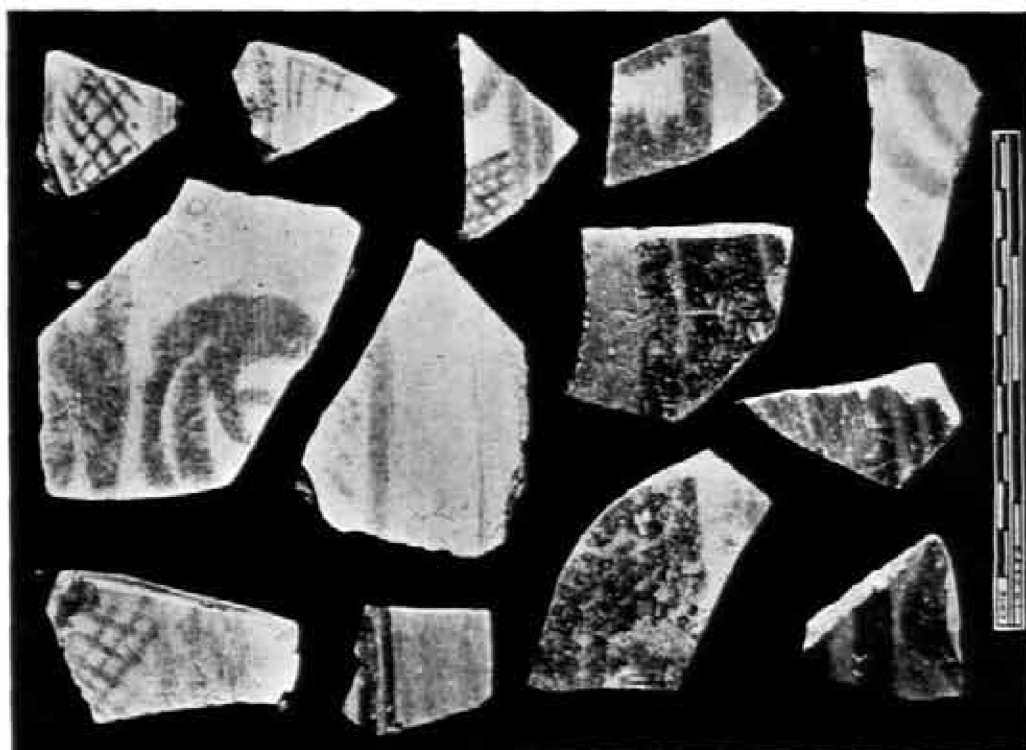




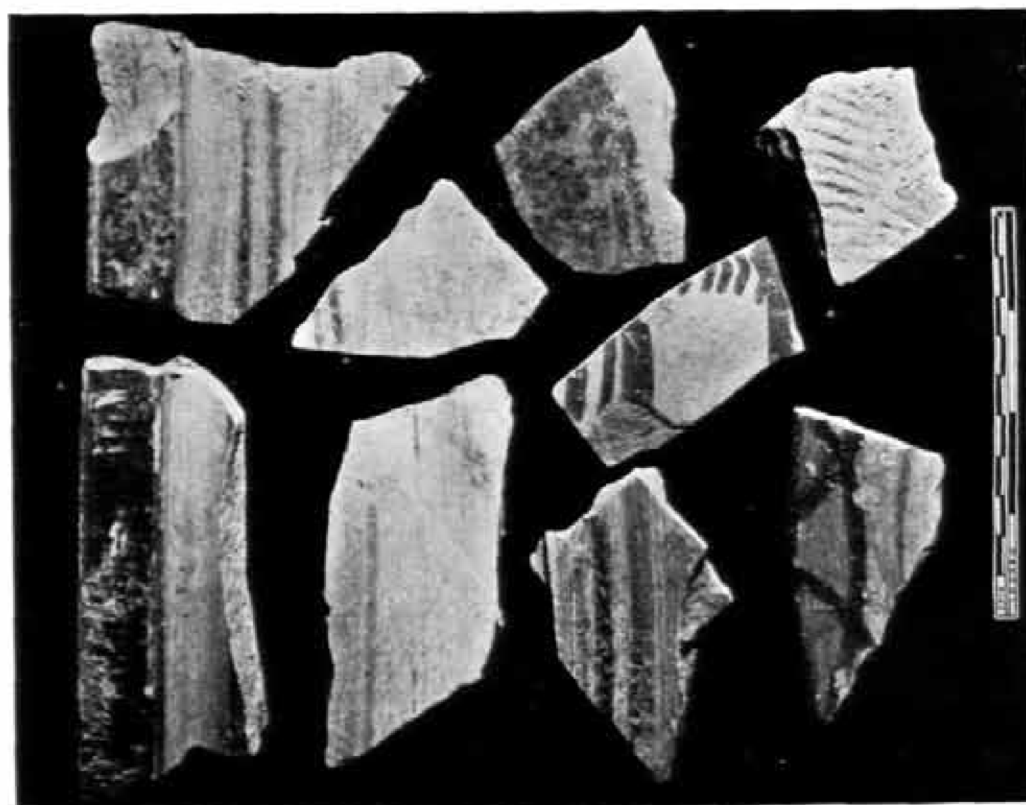
Gauhati : A, *terracotta boat*; B, *Dhatva* : *excavated trench*. *See pp. 8 and 20*



Malvan : general view of the mound. *See p. 11*

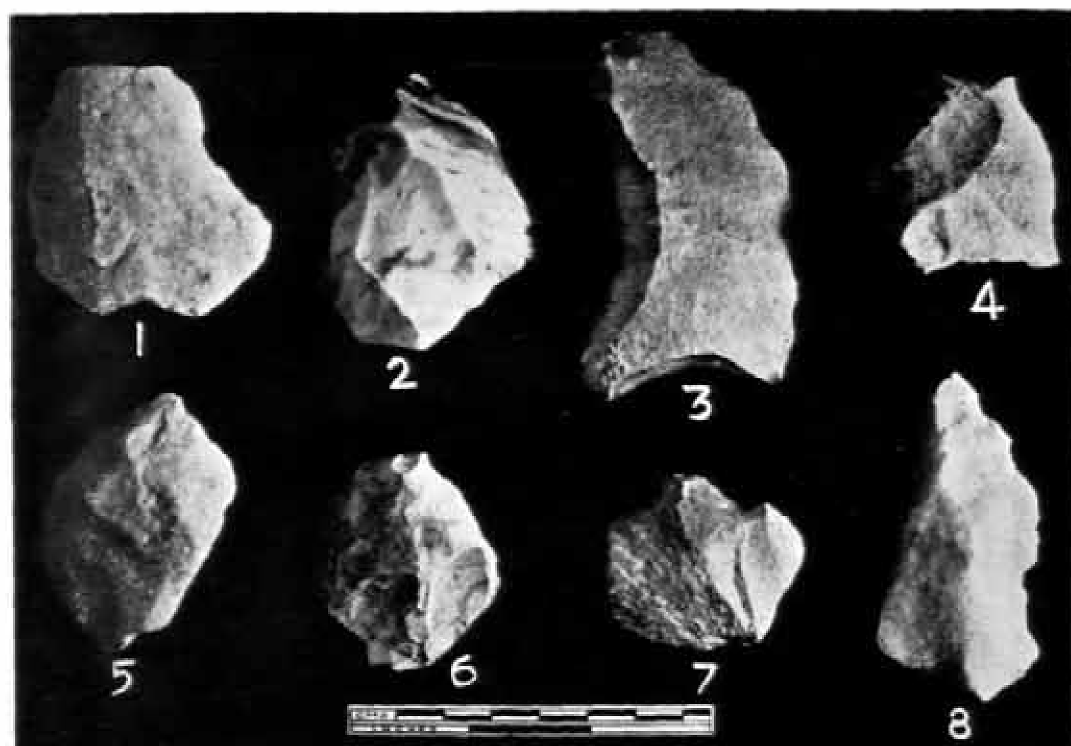


B

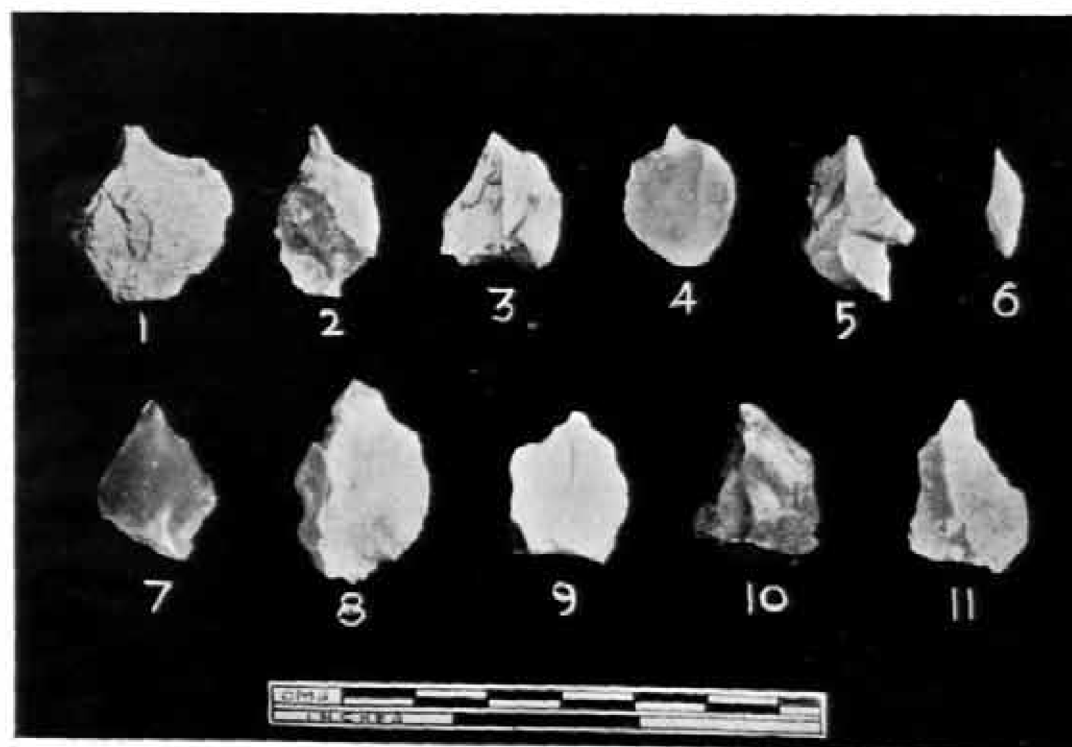


A

Malvan : painted pottery. *See p. 11*



A

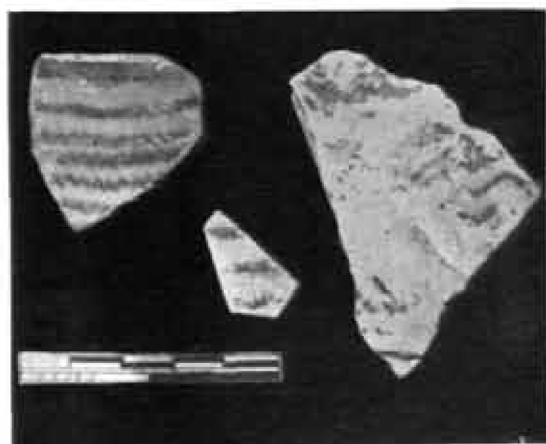


B

Kutch : A, *Middle Stone Age tools;* B, *Late Stone Age tools.* *See pp. 13 and 14*



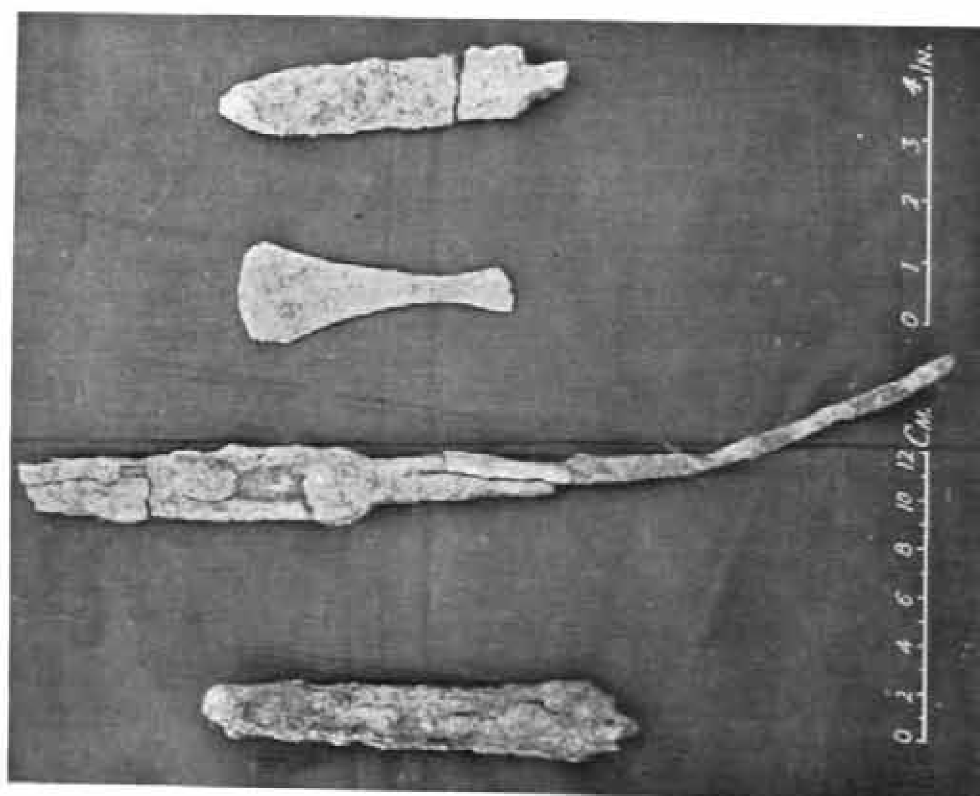
A



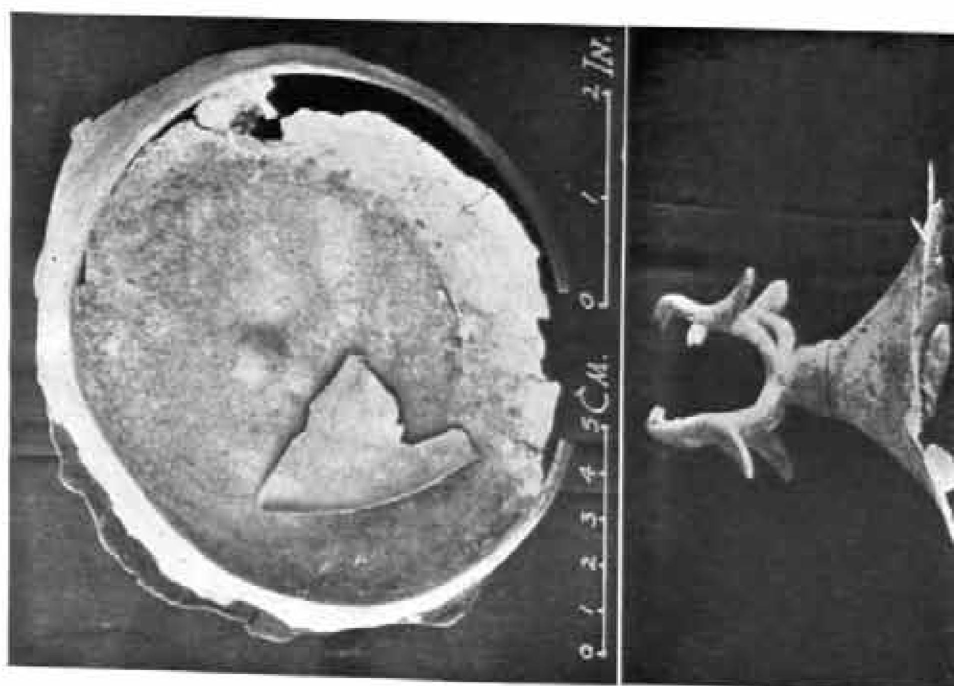


B C

Kotadi : A, exposed section of the mound; B, reserved slip ware; C, blades, bangles, etc. *See p. 16*



B



A

Khapa : A, *copper dish and lid;* B, *Iron objects.* *See p. 34*



Kalibangan, KLB-1 : baked-brick drain of successive phases along with mud-brick platforms. *See p. 45*



Kalibangan, KLB-1 : baked-brick drains of successive phases along with mud-brick platform. *See p. 45*



A

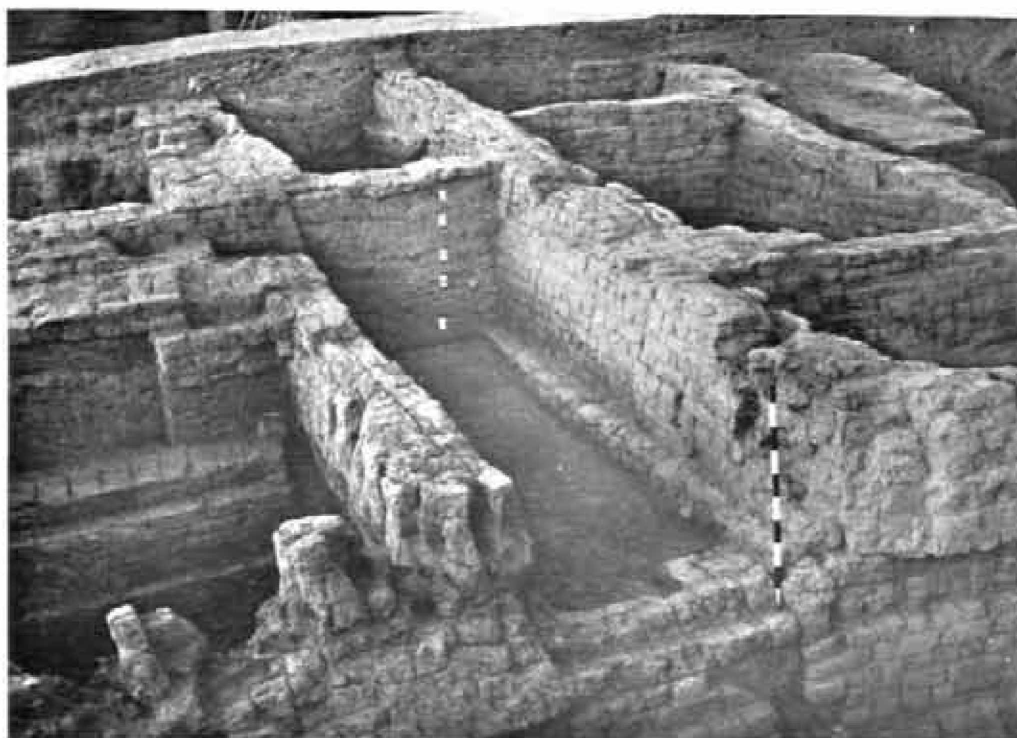


B

Kalibangan, KLB-1 : A, *mud-brick platforms showing a passage in between* ; B, *baked-brick drains of successive phases.* *See p. 45*



Kalibangan, KLB-2 : part of an excavated house showing the entrance (indicated by the figure in the top margin), the corridor, the flanking rooms and the courtyard (with deep degging). See p. 44

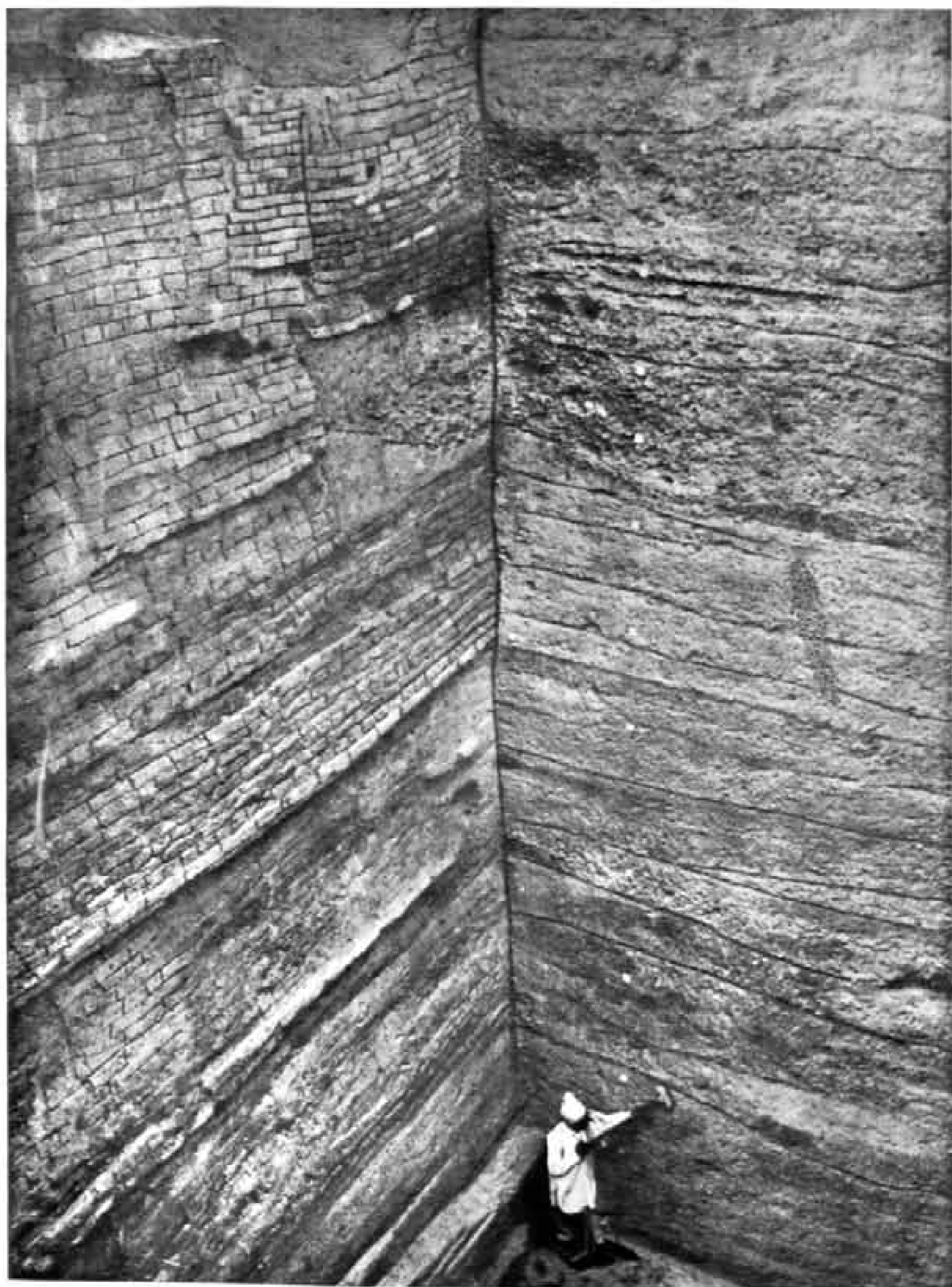


A

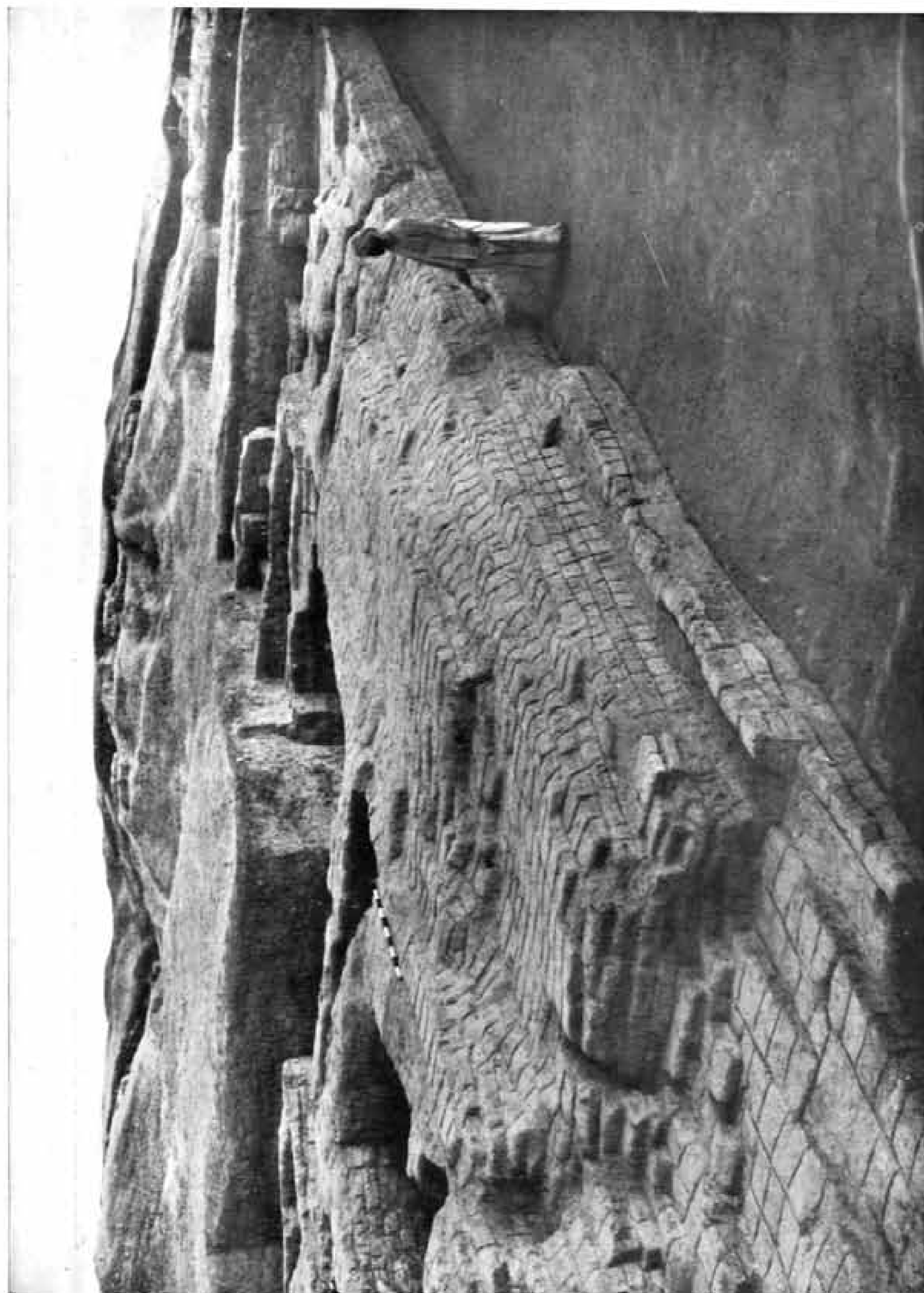


B

Kalibangan, KLB-2 : A, *entrance of a house showing the corridor and flanking room;* B, *house-drain discharging into a soakage-jar in the street.* *See p. 44*



Kalibangan, KLB-2 : section showing successive structural phases and road-levels in one of the north-south running thoroughfares. *See p. 44*



Kalibangan, KLB-1 : fortification-wall on the western periphery of the 'Lower-City'. *See p. 44*

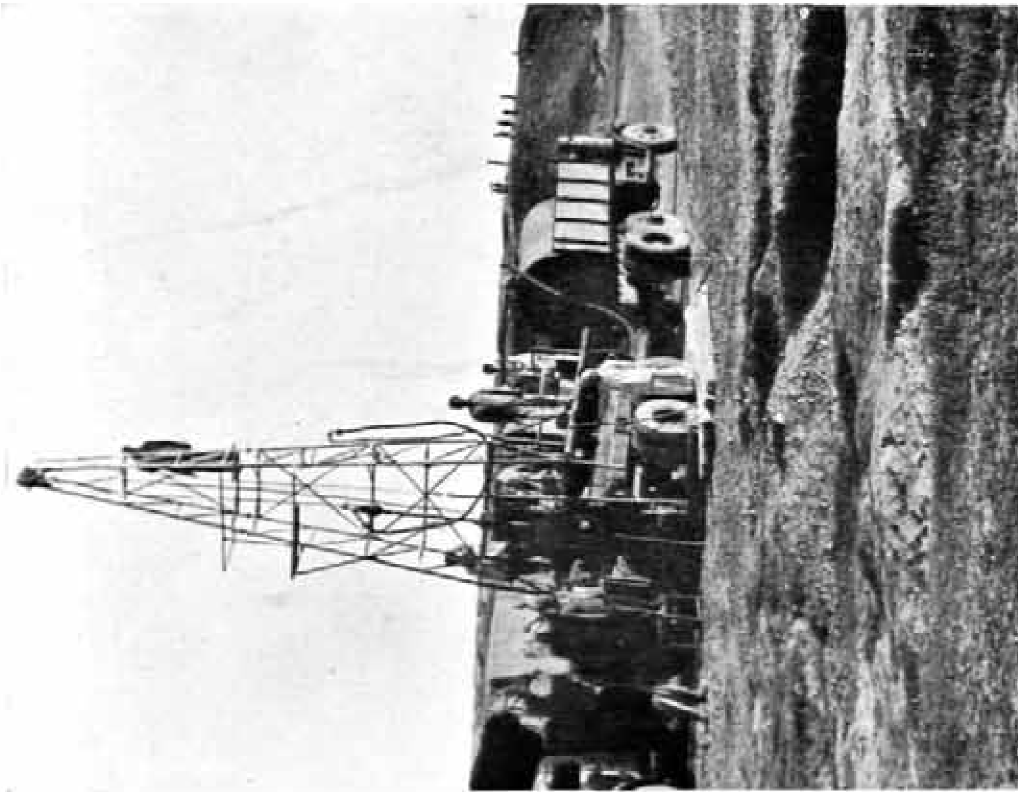


A



B

Kalibangan, KLB-2 : A, *northern flank of the gateway on the western side of the 'Lower City', looking* **north-***west;* B, *gateway showing the entrance-passage and the guard-room, looking south-east.* *See p. 44*

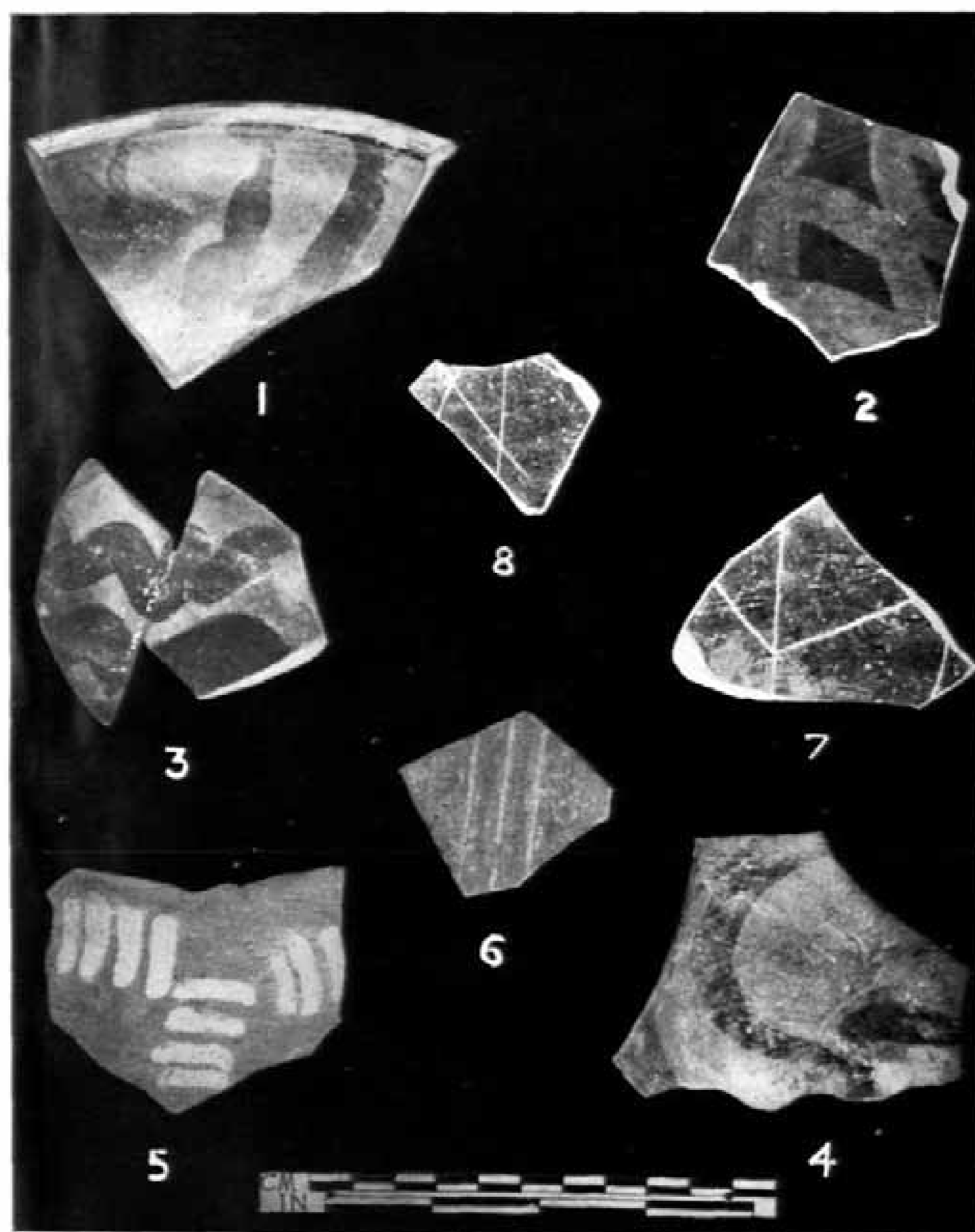


B



A

Kalibangan, KLB-1: A, pre-Harappan baked-brick drain below a Harappan platform; B, boring for hydrological investigations. *See p. 45*



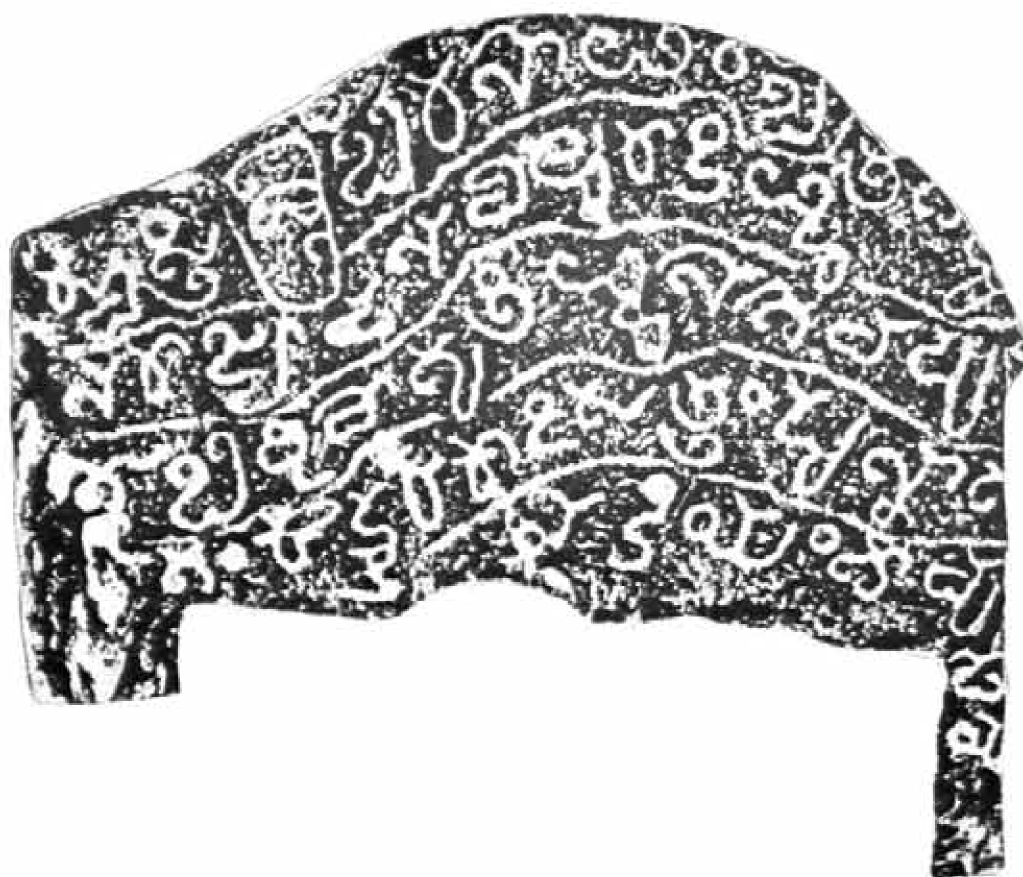
Sarai-Mohana : sherds bearing graffti and paintings, Sub-period I B. *See p. 49*



Sarai-Mohana : terracotta human figurines. See p. 49



Erode : Chera inscription. *See p. 53*



A



B

A, *Navalai : Nolamba inscription;* B. *Srinagar : Mughal inscription.* *See pp. 54 and 58*



A



B

Khajuraho Museum, Khajuraho : A, *Jaina and Vaishnava Gallery;* B, *partial view of the Jaina Gallery.* *See p. 77*



B



A

Mathura Museum, Mathura : A, *sandstone image of Surya;* B, *Dasavatara panel.* *See p. 78*



A

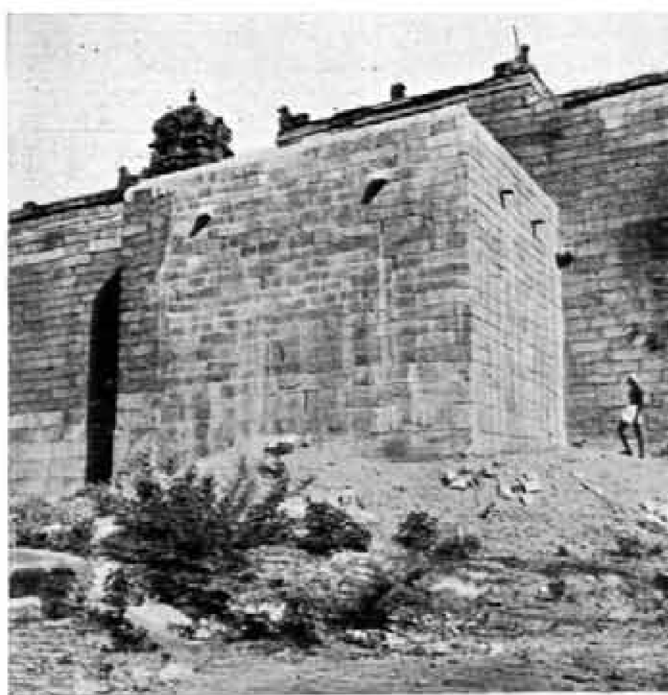


B

Bhatinda : Bhatinda fort, A, *before, and* B, *during conservation.* *See p. 89*



A



B

Tiruverumbur : Srierumbeswara temple, A, *before, and* B, *after conservation.* *See p. 90*



B



A

Vishnupur : Jor Bangla temple, terracotta plaques, A, during, and B, after treatment. *See p. 97*